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Report of Proceedings of Section G—Veterinary Hygiene.

Under the newly-adopted title of "Section of Veterinary Hygiene," the Section of the Royal Sanitary Institute's Congress devoted to the problems of Veterinary Public Health, held a highly successful series of sittings at Hastings on the 14th and 15th July, 1927.

The following is a list of some of the delegates present :—

Professor J. Basil Buxton, M.A., F.R.C.V.S., D.V.H., Cambridge, President; Councillor F. S. H. Ashcroft, Port Sanitary Committee, Liverpool; Councillor W. Asbury, Health Committee, Sheffield; David Andrew, Chief Sanitary Inspector, North Ayrshire; W. M. Ash, M.B., D.P.H. (M.O.H.), Derbyshire C.C.; Lieut.-Col. J. W. Brittlebank, C.M.G., M.R.C.V.S., Manchester; E. J. Burndred, M.R.C.V.S., D.V.H., Blackburn; Mrs. E. J. Burndred, Blackburn; A. J. Bennett, Rainham, Kent; Councillor J. G. Bainbridge, Bishop Auckland U.D.C.; J. D. Buchanan, M.B., D.P.H. (M.O.H.), Lancaster; Alderman G. Basterfield, J.P., Vice-Chairman, Health Committee, Barrow-in-Furness; F. Barnett, Sanitary Inspector, Bilston U.D.C.; J. Bodle, Hastings; F. H. Brundle, C.C., Corporation of London; Councillor J. J. Brazier, Chairman, Health Committee, Bournemouth; J. C. Beckitt, M.R.C.S. (M.O.H.), Leigh; H. W. Bailie, L.R.C.P. (M.O.H.), Belfast; Councillor D. Banshaw, Chairman, Health Committee, Audenshaw U.D.C.; David Boyd, Sanitary Inspector, Berwick-on-Tweed; Councillor A. J. Best, Vice-Chairman, Health Committee, Darlington; Councillor J. Bassett, Chairman, Health Committee, Caerphilly U.D.C.; P. S. Blaker, M.D., D.P.H. (M.O.H.), Dudley; Bailie John H. Carnie, Kilmarnock; Councillor H. B. Cleary, Chairman, Sanitary Committee, Cheadle R.D.C.; Mrs. H. B. Cleary, Cheadle R.D.C.; Alderman J. H. Cleake, Chatham; Councillor Anthony Carr, Barnoldswick U.D.C.; James Cummings, Sanitary Inspector, Aberdeen; James Cullen, L.R.C.P. (M.O.H.), Runcorn U.D.C.; Alderman T. Chambers, Chairman, Health Committee, Dudley; C. J. Cleeve, Sanitary Inspector, Chertsey R.D.C.; J. A. M. Clark, M.D., D.P.H. (M.O.H.), Walsall; John Davies, Sanitary Inspector, Kilmarnock; H. M. Doxey, Sanitary Inspector, Audenshaw U.D.C.; Herbert E. Deuce, Sanitary Inspector, Kettering; Councillor Domleo, J.P. (Mayor), Derby; T. P. Dixon, Sanitary Inspector, Middlesbrough; Osborne J. Evans, Sanitary Inspector, Aberystwyth; T. France, Sanitary Inspector, Hindley U.D.C.; Mrs. T. France, Hindley U.D.C.; J. A. Fairer, M.D., D.P.H. (M.O.H.), Leicestershire C.C.; T. E. Francis, O.B.E., M.D. (M.O.H.), Barnsley; J. S. Forster, Gloucester; Alderman F. Fountain, J.P., Chairman, Health Committee, Leeds; Alderman J. Fielding, Chairman, Health Committee, Blackburn; F. L. Gooch, F.R.C.V.S., Stamford Baron, Northants.; Captain Ross Grant, B.V.Sc., Commonwealth of Australia; W. Grant, M.B., D.P.H. (M.O.H.), Easington R.D.C.; George Howie, M.R.C.V.S., Aberdeen C.C.; J. W. M. Hinton, M.R.C.V.S., St. Leonards-on-Sea; Councillor W. Hardman, J.P., Chairman, Health Committee, Rawtenstall; W. Holmes, Sanitary Inspector, W. Riding, Yorks.; W. E. Hoyle, Sanitary Inspector, Rawtenstall; J. Holroyde, M.R.C.S., D.P.H. (M.O.H.), Chatham; Alderman W. T. Jackson, Chairman, Public Health Committee, Manchester; Edwin W. Jones, Hastings; E. Jackson, Sanitary Inspector, Leigh; R. W. C. Kingsley, Sanitary Inspector, Burton Latimer; W. D. Little, F.R.C.V.S., Reading; Lieut.-Col. Gerald Leighton, O.B.E., M.D., D.Sc., F.R.S.E., Edinburgh; W. E. Leather, Sanitary Inspector, Chingford U.D.C.; T. C. Lewis, Monmouthshire; W. Leach, A.R.S.I., Rochdale; Sir John Moore, F.R.C.V.S., K.C.M.G., C.B., Hampstead; James McAllan, M.A., B.Sc., M.R.C.V.S., Aberdeen; J. Mercer, Sanitary Officer, Lancashire C.C.; G. W. Mason, Sanitary Officer, Lancashire C.C.; P. Jauvrin Marett, M.R.C.S. (M.O.H.), Jersey; W. H. Martin, Sanitary Inspector, Epsom; J. T. McNab, M.B., D.P.H. (M.O.H.), Stafford; A. B. McMaster, M.D., D.P.H. (M.O.H.), Dover; Alderman W. Muirhead, Chairman, Health Committee, Liverpool; W. A. Muir, M.D., D.P.H., (M.O.H.), Gillingham, Kent; R. P. McDonnell, F.R.C.S.I., D.P.H., Irish Free State; Dr. J. McClory, Governor, N. Ireland; S. A. Moses, Sanitary Inspector, Abercarn U.D.C.; Alderman W. Phené Neal, J.P., Corporation of London; Councillor T. Ogden, Chairman, Sanitary Committee, Hindley U.D.C.; James Orr, L.R.C.S., D.P.H. (M.O.H.), Barrow-in-Furness; Thomas Orr, M.D., D.Sc. (M.O.H.), Ealing; John R. Oxenham, Sanitary Inspector, Coseley U.D.C.; T. Parker, F.R.C.V.S., Newcastle; Dr. Charles Porter, B.Sc. (M.O.H.), Marylebone; Frank J. Pullan, Corporation of London; P. Perkins, M.R.C.V.S., Hastings; Councillor Geo. Probert, Vice-Chairman, Health Committee, W. Riding, Yorks.; Mrs. Geo. Probert, W. Riding, Yorks.; R. Proudfoot, M.D. (M.O.H.), Macclesfield R.D.C.; James Peet, Chief Sanitary Inspector, Southport; Dr. Juan E. Richelet, Argentine Representative; Councillor J. S. Ratcliffe, Glasgow; John Ross, Sanitary Inspector, Bourne R.D.C.; F. Rogers, Sanitary Inspector, Todmorden; Councillor W. T. Roberts, Liverpool; Councillor J. B. Smith, Tottenham U.D.C.; Councillor James Irvine Smith, C.B.E., M.R.C.V.S., J.P., Johannesburg, S.A.; Dr. H. Scurfield, Folkestone; H. Y. Stazicker, Chief Sanitary Inspector, Crewe; R. M. Sargent, Sanitary Inspector, Farnham U.D.C.; R. D. Smedley, M.D., D.P.H. (School M.O.), West Sussex Education Committee; T. F. Smith, J.P., Hastings R.D.C.; William Tweed, M.R.C.V.S., D.V.S.M., Sheffield; A. M. Trotter, M.R.C.V.S., Glasgow; Alderman F. Tweedle, J.P., Chairman, Health Committee, Birkenhead; Andrew Trimble, M.B., D.P.H., Chief Tuberculosis Officer, Belfast; G. H. Wooldridge, F.R.C.V.S., M.R.I.A., London; Councillor A. W. Whittle, Leicester; John D. Watson, Birmingham; R. E. Wallace, Assistant Sanitary Inspector, Epsom R.D.C.; Frederick Whittingham, C.C., Chairman, Cattle Markets Committee, Corporation of London; W. Jackson Young, F.R.C.V.S., D.V.S.M. (Vict.), Newcastle-on-Tyne; James R. Hayhurst, M.R.C.V.S, D.V.S.M.(Vict.), Recording Secretary, Corporation of London.

The Conference assembled at the Church Institute, Priory Street, Hastings, on Thursday, 14th July, 1927.

The President, Professor J. Basil Buxton, M.A., F.R.C.V.S., D.V.H., took the chair at 10 a.m., and proceeded to read his opening address, which was as follows :—

Professor J. B. Buxton's Presidential Address.

The first meeting of the Veterinary Inspectors' Conference was held in 1899 at Southampton, under the presidency of the late William Hunting. Since then eighteen meetings have been held, and at this, our twentieth, we appear under a new name. Some there may be who feel that the alteration in designation was unnecessary, especially since it was not suggested as a prelude to any proposed alteration in the scope of the contributions to our gatherings. Indeed, a survey of the several subjects

which have been dealt with at previous meetings would show the lack of necessity for the change on this ground, while conversely it could not fail to impress one with the desirability of finding a designation which was more appropriate in view of the far-reaching character of our deliberations. Hygiene is the science which deals with the preservation of health and in its practical aspect aims at rendering "growth more perfect, decay less rapid, life more vigorous, and death more remote." The subject is thus a very wide one embracing all the agencies which affect the well being of men and animals. It requires an acquaintance with such diverse sciences as physics, chemistry, geology, architecture, meteorology,epidemiology, bacteriology, and statistics.

In his excellent presidential address to this Conference at the Jubilee Congress last year, Alderman Phené Neal paid tribute to the progress which has been made in Veterinary Science during the last decade, and expressed his expectation of developments in the pursuit of preventive medicine. I think we all deeply appreciate the necessity for the further development of this branch of veterinary hygiene, for we realise the importance of veterinary preventive medicine, both in respect of its economic significance in the maintenance of the health of the flocks and herds of the world and of its direct and indirect bearing upon the physical well-being of mankind.

But the study of veterinary hygiene, especially in its bearing upon the prevention of disease, is by no means of recent origin. It is indeed one of the oldest in the history of science and is referred to in the works of Hippocrates, Diocles of Carystus, and Aristotle, while Columella, who probably drew largely upon the work of Mayo of Carthage (200 B.C.) in compiling his De Re Rustica, treated not only of medicine and surgery, but also of sanitary measures for the suppression of contagious diseases. Apsyrtus of Bithnia, the most renowned veterinarian of the Roman Empire, recognised the contagious nature of glanders, farcy and anthrax and prescribed isolation for their suppression.

In our own day it is forced upon us that that branch of Veterinary Medicine which is represented by the science of Veterinary Hygiene and its various component sciences must necessarily depend for its progress upon that division of labour which has characterised the advance of all other walks of life—specialism. It is true that there is unfortunately, at times, failure on the part of the specialist in one branch of science properly to appreciate the labour of the specialist in another and interdependent branch in such a way as to derive that benefit which invariably results from adequate intercommunication and comparison of thought and achievement. But if there is one individual who must not indulge in such splendid isolation, it is he who administers—in however humble fashion—to the well-being of mankind.

There is a tendency to the creation of a false impression in the minds of those who are not intimately acquainted with our work regarding the progress which is being made in certain aspects of veterinary science. In the case of state hygiene, for example, it is generally conceded that our profession provides a very excellent and efficient staff of inspectors whose duty it is to enforce the many provisions of the Diseases of Animals Act.

Very few, however, realise or indeed have the opportunity of realising that these men are not necessarily mere automata, but that they have souls and individuality of their own and that, as a result of their observations and deductions, many possess an originality of thought which is of fundamental importance in building up an intelligence department which is so necessary in a wise administration.

So in municipal hygiene, while for those who possess no imagination it may resolve itself into a humdrum method of existence in the vast majority of cases, erudition and intellection initiate a variety of research which not only gives zest to the efforts of the individual, but which, by free intercommunication, ensures that progress which has characterised the pursuit of all branches of science which have a direct or indirect bearing upon public health work.

Such meetings as this offer unrivalled opportunities for that freedom of intercourse and comparison of effort which are of fundamental importance in establishing liaison between those whose work deals with the more hypothetical side of public health work in the laboratory, and those who convert such hypotheses *a posse ad esse*.

In conclusion, I would express the sincere hope that every advantage may be taken of the facilities which these meetings offer.

The PRESIDENT informed the delegates that Mr. J. S. Lloyd, F.R.C.V.S., of Sheffield, the author of the paper to be read that day, was unfortunately unable to attend the meeting as he was seriously ill, but had deputed Mr. W. Tweed, M.R.C.V.S., his assistant, to read the paper, which was as follows :—

Tuberculous Infection in Milk as affected by Recent Legislation.

By J. S. LLOYD, F.R.C.V.S., D.V.S.M. (Vict.), Chief Veterinary Inspector for the City of Sheffield.

Before discussing recent legislation, past legislation should be reviewed in a short manner. The Royal Commission on Tuberculosis, in their report issued in 1898, recommended the inclusion of tuberculous diseases of the udders of milking cows in the Dairies, Cowsheds and Milkshops Order of 1899, and the granting of powers to Local Authorities of large cities to go outside their areas and trace the sources of tuberculous milk coming into their area. In 1900 and 1901 Parliamentary Powers were given amongst other towns to Leeds, Liverpool, Manchester and Sheffield, and considerable work was done in each of these towns in following up tuberculous mixed samples.

The procedure in Sheffield was as follows :—to take mixed samples from road and rail conveyances coming into the city, submit them to the biological test at the Bacteriological Department of the Sheffield University and, after obtaining a Magistrate's Order, follow up the positive samples to the farms from which the milk was despatched. In some of these cases cows with tuberculosis of the udder were found, whilst in others no tuberculous animals could be found. The latter fact seemed to be affected by various conditions—in some cases several cows had been sold from the farms between the taking of the mixed sample and the visit of the Veterinary Inspector and possibly the offending cow was amongst the number,

in other cases palpably tuberculous cows had been sent to the knacker yard; in a number of cases the milk despatched from the farm was produced by cows at one farm and also by cows at neighbouring farms, all being sent to the City as one consignment in the name of one farmer; a further reason for not finding the cow was the fact that churns were sometimes used by other farmers than the persons owning the churns and the name and address of owner was on them. This address was taken if no other labels of the milk consignor were attached or had got lost in transit. Following up the visit to the farm in the tuberculous samples, special samples were taken from any cows exhibiting signs suspicious of tuberculosis of the udder and a control or group sample (that is a mixed sample from the rest of the herd) was also taken. In the years up to 1913 all these samples were sent to the University for the biological test, although very occasionally, where the clinical symptoms were very marked, a microscopic positive result of the examination of the centrifuged residue of the milk was obtained. Since 1913 most of the special samples have been centrifuged and the deposit examined for tubercle bacilli after staining by the Ziehl-Neelsen method and the percentage of tuberculous milks discovered by this means has been as high as 80. Failure to find tubercle bacilli by microscopic examination does not warrant the investigator stating that the milk is not tuberculous and in all negative cases the special sample as well as the control or group samples have been submitted to the biological test. Where control samples have proved positive the farms have again been visited and a similar procedure adopted, the milk from the farm remaining under suspicion until all the cows definitely known to be affected with tuberculosis of the udder were destroyed or removed.

The Tuberculin Test in such cases has not proved of any value, as a positive reaction only shows that the animal is affected with tuberculosis somewhere in its body—it does not indicate that a suspicious udder is affected with tuberculosis.

A percentage of cases, according to the experience of the Inspector, can be definitely dealt with as tuberculosis of the udder by clinical examination only, and especially if in such cases the animal shows other clinical symptoms of tuberculosis elsewhere in its system. Where the clinical examination and the centrifuged deposit from the milk is microscopic positive, there is very little probability of error in deciding that such an animal is affected with tuberculosis of the udder.

The following figures will show the work done under the Tuberculosis Milk Clauses in Sheffield since the Local Act came into force. To give fairly comparative figures I have eliminated the years 1901—2 because little was done under the Clauses during those years and I have eliminated the period of the War, seeing that the work was greatly interfered with by the absence of Veterinary Inspectors and by the inability to deal with the biological test at the University owing to the scarcity of staff and of guinea-pigs.

During the years 1903—8, 764 mixed samples were taken, of which 80 were found to be tuberculous, a percentage of 10·4.

During the years 1909—14, 2,552 mixed samples were taken, 211 of which were found tuberculous, a percentage of 8·2.

During the years 1921—6, 5,959 mixed samples were taken, 464 of which were found tuberculous, a percentage of 7·8.

These figures apparently show that there has been a gradual diminution of tuberculous milks sent into Sheffield since 1905 to the end of last year.

If we take the year 1926 alone, the figures are 993 mixed samples taken, of which 65 were tuberculous, equal to a percentage of 6·1, figures which confirm the last statement.

If the total results of the three six-year periods are summarised, the figures work out as follows:—

Mixed samples taken ...	9,275
Positive by biological test	755
Equal to a percentage of	8·1

In connection with these 755 tuberculous samples, 16,194 cows were examined, giving an average to each farm or cowkeeper's premises of 21·4. The number of tuberculous udders found amongst these 16,194 cows was 521, giving a percentage of 3·2.

The above figures apparently show that not only does the greater number of mixed samples taken tend to diminish the tuberculous infection coming into the city as mentioned above, but an equally good result is obtained by finding a greater percentage of cows with tuberculosis of the udder and, thanks to the Tuberculosis Order, of getting them slaughtered and their presence as sources of tuberculous infection removed.

It must not be understood that the percentage of cows affected with tuberculosis of the udder on dairy farms is 3·2; our figures only show that it is 3·2 on farms from which tuberculous samples were sent to Sheffield. After deducting the 755 tuberculous samples there remain 8,520 samples which successfully passed the biological test and more or less represent 8,520 farms. If we calculate the number of cows at 21·4 per farm from which non-tuberculous samples were sent, we get a total of 183,328 cows which, added to the 16,194 cows of the tuberculous farms, gives 198,522, equal to a percentage of 0·25 as being affected with tuberculosis of the udder.

In addition to taking mixed samples of milk sent from outside areas by road or rail conveyance, routine inspection under the Dairies, Cowsheds and Milkshops Order, 1899 of all milking cows housed *within the City* has been regularly carried out by Veterinary Inspectors, each herd being inspected about five times a year, three times in winter and twice in summer.

During the three six-year periods mentioned the number of cows examined *in the City* totalled 129,160, the number found with tuberculous udders being 348, equal to a percentage of 0·27.

It will therefore be seen that the percentage of cows with tuberculous udders found in Sheffield farms in the city by routine inspection closely approximates the percentage found in the surrounding districts under the Local Parliamentary Powers, *viz.*, 0·27 and 0·25 respectively.

This also shows the number of cows found in and around Sheffield suffering from tuberculosis of the udder alone to be 0·2 and 0·3 per cent.

Until September, 1925, when the Milk and Dairies (Consolidation) Act, 1915 and the Tuberculosis Order came into force, the Tuberculosis Milk Clauses contained in several Local Acts of Parliaments, the Dairies, Cowsheds and Milkshops Order, 1899, the Milk and Dairies (Amendment) Act, 1922, were the powers used to prohibit the sale of milk from any cow suffering from tuberculosis of the udder, and when an owner knew that an animal had tuberculosis of the udder it was illegal to expose the milk for sale.

When these cows were found in tracing tuberculous samples of milk, one of the great difficulties was to get the animals slaughtered, as no power was given to have this done. The Local Authority could only demand isolation and stoppage of the sale of milk and this depended for its carrying out upon the character of the farmer. The only alternative, if he declined or continued to supply milk from such an animal, was to ask him to appear before the Committee to show cause why an Order should not be made preventing him sending any milk to Sheffield. This, of course, could not prevent him sending his milk elsewhere if he wished.

The Tuberculosis Order in 1925 ensured the slaughter of these cows supplying tuberculous infection in their milk, but even prior to 1925, when the only powers to deal with outside milk supplies of large cities were the Local Parliamentary Powers, if these were administered as in Sheffield it will be seen from the figures previously quoted that a considerable amount of good work was done in having the sale of tuberculous milk prohibited. Apart from these cases discovered by the Local Authority, when the owner was informed that he had such an animal in his possession, the old Powers threw the responsibility on the owner of knowing that the cow's udder was so affected, and if he was found supplying milk from such an animal in his possession or could have ascertained that he had an animal supplying milk and affected with a tuberculous udder, he was guilty of an offence, but it was difficult to prove that the farmer was guilty.

Now it is far more reasonable to saddle the owner with the responsibility for notifying the Local Authority as required by the Tuberculosis Order of 1925, so that instead of prohibiting the sale of milk containing tuberculous infection without power to slaughter the animal, the Local Authority now require him to report any chronic thickening in the udder in cows or any emaciated animals or animals suffering from chronic cough, and they investigate these reported suspicious cases. The Local Authorities of large cities also continue to carry out the examination of their milk supplies from outside sources as previously outlined, and this is a system which has much to recommend it, both as a Public Health measure and a measure in the eradication of tuberculosis in animals, in that the Local Authority which protects its area in this way also through its own Veterinary Officer helps in the necessary investigations in tracing the source of the infection in the milk. It also discovers cases of tuberculosis of the udder which are not notified and are therefore not discovered in most country districts by any other means.

The Milk and Dairies (Consolidation) Act of 1915 has now revoked the Tuberculosis Clauses of the old Local Acts and since the Parliamentary Powers of large cities have been withdrawn, all administrative effort to deal with tuberculous infection in milk has now to be worked between the consuming and the producing Local Authorities through the Milk and Dairies (Consolidation) Act, although certain counties instead of sticking to the wording of the Act have administered their powers under the Tuberculosis Order. The disadvantages of the Act are that the procedure is cumbersome and to some extent loaded with red tape. In Section 4 of the Milk and Dairies (Consolidation) Act, 1915, when tuberculous milk is found to be sent from an outside producing to an inside consuming area, notice has to be given by the Medical Officer of Health of the last area to the Medical Officer of Health of the first area and he, in turn, has to arrange for the Veterinary Inspection of the cattle on the farm from which the tuberculous milk has been sent. At the same time he has to notify the Medical Officer of Health of the consuming area when the inspection is to be made, so that he and/or the Veterinary Inspector of the consuming area can be present at the time of inspection; he also has to give notice to the dairyman so that he can be present at the inspection and have a Veterinary Surgeon present as well if he so desires. Some counties, as already stated, are not working this Section of the Act because no Veterinary Inspector has been appointed to carry out the duties, but immediately the Medical Officer of Health of the sending area receives information from the Medical Officer of Health of the receiving area, the former notifies the Chief Constable, who puts into operation the Tuberculosis Order, 1925, and in consequence an array of motor cars and officials, Veterinary Inspectors and Police Officers arrive when the premises are visited. If the inspection was left to the Veterinary Inspector of the sending area, working in conjunction with the Veterinary Inspector of the consuming area, little or no publicity would be given that the cows on a suspected farm were being examined and when investigations were completed and the source of infection isolated it could then be dealt with by the Diseases of Animals Authority under the Tuberculosis Order.

According to the Act, the obligation to trace the tuberculous cow is now thrown upon the Local Authority of the producing area after information is received from the Medical Officer of Health of the consuming area. This might appear a practical method of procedure in that it makes provision for the producing area to take its share in tracing the source of infection, yet it has been found more cumbersome to work than the procedure previously carried out under the Local Act or those contained in Section 6 of the Scottish Milk and Dairies Act, 1915, where it states "Where any official of a Local Authority proposes to inspect any dairy in the district of another Local Authority or to examine the cattle, he shall give information to the Medical Officer of Health of the second named district so that if circumstances permit the Medical Officer of Health or Veterinary Officer of the second named district may be present at such inspection or examination."

As the result of communications having to pass between the different areas, there has been in some cases considerable delay in visiting the implicated farms and examining the suspected herds. This delay to some extent is caused by the fact that the Police have to be

notified by the Medical Officer of Health and they in their turn have to notify the Veterinary Inspector working the Tuberculosis Order and also notify the farmer of the time of the intended visit and examination of the Herd required by the Act. It is advisable that the Veterinary Inspector who carries out the investigations of tracing the source of the tuberculous infection in the milk under the Act should also deal with the offending animal under the Tuberculosis Order, yet the farmer being notified by the Police of their intended visit at a certain time leaves the farmer a loophole to remove an animal which he himself suspects to be tuberculous and one that he fears should have been reported to the Local Authority. This leaves a suspected sample of milk unsatisfactorily investigated. It also allows a farmer to prepare conditions for inspection —conditions which it is better to see in their natural state. In my opinion, notification of the farmer is of little or no benefit even to himself and could profitably be omitted, and if he should desire his own Veterinary Surgeon's advice it could be arranged for later.

If the action taken was more direct, no previous notification being given and the procedure simplified in getting to the source of infection, better results would follow.

Whether we are making the best progress in the eradication of tuberculosis from animals and so protecting milk supplies with our present legislation and methods is difficult to foresee.

The Milk and Dairies (Special Designations) Order of 1923, made under the Amendment Act, is a measure which has so far been an *optional* one on the part of the farmer to free his herd from tuberculosis by the application of the Tuberculin Test, and he is protected by licence to sell the milk from such cows as tubercle-free milk.

There is no doubt that milk from cows which have passed the Tuberculin Test is the ideal to be aimed at, but unfortunately it is an optional measure on the part of the farmer at the present time and the *incentive* to produce such milk is not great, considering the very small demand for it on the part of the public at the price which it costs to produce.

Grade A milk, although not guaranteed free from tubercle bacilli, can be almost relied upon to be so, with very few exceptions, and in those cases where it is found to contain tubercle bacilli the lesion in the udder of the cow, the source of infection, is an early one and which it has not been possible to detect by clinical examination as carried out by a Veterinary Surgeon at three-monthly periods instead of the application of the Tuberculin Test done in the other grades. It serves to show, however, that although clinical examination will detect a large percentage of tuberculous udders, yet it may be necessary to continue the biological examination of milk samples to detect cases of tuberculous mastitis in their early stages. Where you have knowledge that the mixed milk from an herd is affected and individual samples of the cow's milk are then taken and examined, the cow can be traced in this way where it is impossible to do so by clinical examination.

The Tuberculosis Order at present is dealing with cases which are already very infectious to other animals in contact with them and a source of danger to humans consuming their milk, but the Order is really catching up the disease and not going out to meet it. Some additional measures of eradicating tuberculosis from animals appear to be called for.

If routine inspection of dairy herds were carried out in connection with the administration of the Tuberculosis Order by Veterinary Officers, there is no doubt that an increased value in the working of the Order would be obtained, because cows with suspected udders proved to be tuberculous could be slaughtered, thus removing tuberculous infection from milk supplies at an early date, whilst cattle affected with *other forms of tuberculosis* mentioned in the Order would be speedily dealt with, thus removing sources of infection to other cattle and consequently some satisfactory steps would be taken to get an efficient, increasing and lasting benefit in the eradication of tuberculosis.

Until we institute routine inspection universally under the Milk and Dairies Order, and take effective steps to deal with the problem of the prevention of tuberculous infection *in animals*, we shall never make any advance in reducing the amount of tuberculous infection occurring in milk. Routine inspection paves the way for effective steps to be taken to explain to the owners the real nature of tuberculosis and its economic importance and prevention and the improvement of milk production generally, and this can only be done by repeated talks with the owners and the pointing out of defects as they exist in each particular case. It would obviate the present results of the Tuberculosis Order, namely, that the great bulk of the animals are only slaughtered when they have done most of the harm they are going to do. These animals would be discovered at a very much earlier stage of the disease rather than relying on notification being made by owners, as it is at present.

Further, considerable sums are being paid in compensation, but the amount of infection in our herds does not appear to diminish, neither do the cases notified appear to increase materially. There is no doubt that large numbers of tuberculous animals are kept by the owners until practically only fit for the knacker yard, where they eventually arrive. If all bovine animals showing clinical symptoms suspicious of tuberculosis were promptly notified to the Local Authority, both by the owners and by Veterinary Surgeons in attendance, a much larger number of animals would be dealt with under the Order and many sources of infection to animals and human beings would be removed and, consequently, better results would follow the working of the Order.

Seeing that notification is not sufficiently carried out, it would appear advisable that compensation should in some of the cases depend upon notification—no notification, no compensation. That would be one means of encouraging notification, but if animals are not notified, when bad cases are discovered without notification, it appears that prosecution should follow more often under the Diseases of Animals Acts. This would no doubt be another means of compelling owners to notify and again increase the value of the Order. Increased notifications would lead to greater control of tuberculosis.

Until we have found a reliable method of preventive vaccination against tuberculosis in animals, prevention and eradication of the disease on the lines of slaughter of the affected animals when they become infective is the

only one upon which we can hope to continue as a means against the spread of the disease, also to recommend carrying out the slaughter of animals at earlier stages of the disease as much as the Exchequer can afford, without a great financial loss to the farmer and a diminution of the milk supply until we reach the ideal tubercle-free animals and a safe milk supply, and with the better organised force of our present legislation we have the means to make a successful attempt.

There is not the slightest doubt that, as at present administered, the powers to deal with tuberculosis are far from providing the public with a tubercle-free milk or removing tuberculous disease from the cattle of this country.

Resolution.

That in order to facilitate the early removal of tuberculous infection from milk supplies, any Loca Authority having ascertained that tuberculous milk is being supplied for consumption in its area from any farm or cowkeeper's premises outside its area may send its Veterinary Officer to examine the cows on such premises, notice of the intention to visit being given to the Veterinary Officer for the district to enable him to be present at the examination, but no notice to the occupier of the premises being required; if any cow is suspected of suffering from any of the forms of tuberculosis specified in the Tuberculosis Order of 1925, notices in accordance with Sections 10 and 11 of that Order as regards milk supply, detention and isolation to be immediately served by the Local Inspector and any such cow subsequently proved to be tuberculous to be slaughtered in compliance with Section 5 of the Tuberculosis Order.

Discussion.

Mr. E. J. Burndred, M.C., M.R.C.V.S., D.V.H., in opening the discussion, said:—It seems to me that the outstanding feature of recent legislation dealing with tuberculous infection of milk, is the failure to recognise the necessity for the early detection and safe disposal of the animals causing the infection. It is made an offence for a person knowingly to sell tuberculous milk; a cow which has, or is suspected of having, a tuberculous udder must be reported; the clinically-affected cow with the chronic cough must also be reported as also must the animal with tuberculous emaciation, but, strange to say, with all these apparent safeguards for the public no attempt is made, with the exception of Certified or Grade A herds, to detect the sources of tuberculous infection of milk. Those of us with experience of such infection know that there are many cases where the owner should have known or should have taken steps to find out the cause of abnormalities of the udder, but we also know that there are also many cases of tuberculous infection of milk where the owner could not be expected to know, so how can he be expected to report?

To make it an offence for a person knowingly to sell tuberculous milk will not stop the sale of it.

Taking the country generally, I think it can truthfully be said that the position is very much the same as it was before recent legislation was enacted.

I know that cows affected with tuberculous udders, chronic cough and emaciation are daily being slaughtered, but most of these have already done untold damage—they are reported cases—obvious, I might say very obvious, cases.

I speak with considerable experience of the farm, the abattoir and the knacker yard when I say that no legislation dealing with tuberculous infection of milk can possibly be effective unless a definite scheme of sampling of milk and regular veterinary examination of milking herds is included.

Such powers were included in milk clauses of Local Acts, which certain progressive towns, such as my own town, had previous to the coming into operation of the Milk and Dairies Act and Regulations, and although the veterinary examination of the herd in the outside districts was only possible at least weeks after the tuberculous infection of the milk had taken place, much good was done.

When I was stationed at Sheffield I had the opportunity of making at least a rough estimate of what benefit regular veterinary inspections of milking herds could be. I plotted out a curve showing the number of cows affected with tuberculosis of the udder detected during a certain period when only one veterinary officer was available, part time, and following on with a period when, owing to the appointment of an additional veterinary officer, many more inspections were made, and there was in consequence a big increase in the number of cases of tuberculous udders detected.

I also plotted out a curve showing the deaths of children from certain tuberculous infections up to the age of 5 years. It was remarkable to see the sudden drop in the death rate co-existent with the greater elimination of tuberculous infection of the milk supply. I also know from experience that, provided veterinary inspection of herds is carried out in a district, cows with tuberculous udders will be detected which would otherwise not have been reported.

An example again from Sheffield illustrated this:—A mixed sample of milk found to be tuberculous was obtained from a dairy, and on investigation it was ascertained that the tuberculous infection of the milk might have come from any one or more of about 80 farms.

It was decided that all these farms should be visited and the herds inspected, and as a result 4 cows with tuberculous udders were detected and dealt with. Such an investigation would not have been carried out unless the consuming authority had taken samples of milk for examination for tuberculous infection. I have perhaps inferred that recent legislation does not contain provision for the detection of the cause of tuberculous infection of milk; that is not what I mean, as the resolution printed deals with such a provision, but this is only possible if a consuming authority does take samples and we all know that very many do not.

I entirely agree with the resolution; the present procedure is not only the cause of considerable delay, but also the multiplication of officials who are apparently necessary considerably adds to the expense.

Reverting to the provisions concerning graded milks, "Certified" I need not discuss, but I feel that experience of Grade A herds should be recorded, to show that the present requirement of quarterly veterinary inspections is insufficient. Visiting such a herd in connection with a clean milk competition, I saw a cow affected with tuberculosis of the udder and told the owner to report it to his authority. I ascertained later that the quarterly veterinary examination was almost due. The cow was eliminated from the herd and the remainder, after examination, were pronounced free from infection, a control sample of milk was negative and so controlled the examination.

Six weeks later a further mixed sample of the milk from the herd was tuberculous and another cow with tuberculosis of the udder was found. The *post-mortem* examination of the second cow was particularly interesting and instructive inasmuch as, apart from certain very chronic lesions in the mesenteric glands, the infection was extremely acute.

There are people I know who would use these cases as excellent examples to prove their contention that pasteurisation and that alone is the cure of all our milk troubles.

I rather take the view that, knowing such dangers exist, it is our duty, so far as lies in our power, to eliminate them, and I have tried to show, from my own experience, that much good can and should be done.

Mr. James McAllan, M.R.C.V.S., Veterinary Inspector, Aberdeen, said he was distinctly disappointed and sur-

prised to find that Mr. Lloyd in his paper spoke of the Tuberculosis Order always in the strain of its being a measure for the eradication of tuberculosis in cattle. That, to the speaker's mind, was a great mistake, for that Order was first and foremost a Public Health measure, being one supplementary to the Milk and Dairies Consolidation Act in England, and Milk and Dairies (Scotland) Act of 1914. He did not doubt that the operations of the Order would have very satisfactory results in eliminating certain types of tuberculosis in cattle, but he could not subscribe to the idea that the Tuberculosis Order was an effort to eradicate the disease from cattle in Great Britain. The speaker also expressed surprise at the difficulties that seemed to arise in England in operating the various Acts and Orders dealing with milk. He pointed out that, as far as Scotland was concerned, there were no difficulties, since each local authority worked with the other simply through its various officers. For example, should a sample of milk taken in a Burgh by a veterinary inspector be found to contain tubercle bacilli, that veterinary inspector simply notified his colleague in the county from which the milk came. The herd was inspected as soon as possible afterwards. Samples of milk were taken and clinical cases of tuberculosis, if found in the herd, dealt with at once.

Notification of necessity for inspecting a herd did not mean that several officials had to be warned. The Acts and Orders worked very smoothly indeed.

The speaker emphasised the great necessity for care being taken in the production of milk and for the eradication of types of tuberculosis as specified in the Tuberculosis Order of 1925. He emphasised also the importance and great value of certified milk in the rearing of children and for invalids and said that the greater the number of certified herds we got established, the nearer at hand would the solution of our milk problem be. He stated that in some parts of Scotland, at any rate, the supply of certified milk did not meet the demand for it.

Councillor GEORGE PROBERT, West Riding, said he hoped the resolution did not go through. Legislation had been passed. Many must have thought that in the past things had not been satisfactory as far as tuberculous milk was concerned in this country; local authorities did not seem to have done all the good that was expected of them. They were all anxious to see rapid strides made more rapidly than formerly, but he did not think the local authorities had yet had time to get properly to work. He considered the resolution premature and thought in three years time, if it was then found necessary, it might be brought forward.

He was in favour of having veterinary surgeons appointed to assist the medical officer.

He hoped the Act would be given a fair trial before a resolution was passed by such a Congress.

Professor G. H. WOOLDRIDGE, F.R.C.V.S., M.R.I.A., Royal Veterinary College, London, said he would like to raise the question of the so-called "grading" of milk. He wished other terms could be found. If the man in the street was supplied with "Grade A" milk he would naturally think it was the highest grade and was quite free from tubercle bacilli, which was not always the case. A different term should be found, but it was very difficult, for no farmer would take the trouble and expense to produce that milk if he had to advertise it as a third grade afterwards. Some steps should be taken to re-name those grades. They must aim to get clean and pure milk and the grading of milk had done much to that end.

Referring to the proposed resolution, it should not be possible for an unscrupulous owner to be able to remove suspected cattle before the visit of an inspector, although he considered it was but right that the owner should be present when the test was made. Black sheep were always found here and there, but, speaking generally, he knew farmers to be honest and only too anxious to assist in detecting suspected cattle.

Dr. H. SCURFIELD, Folkestone, referred to the difficulty of maintaining herds tubercle free. At the half-yearly testings reactors were frequently found.

Inefficient testing, "doping," and infection by human workers with open tuberculosis did not furnish an adequate explanation.

Infected pastures might explain some cases. Was it possible that sometimes new purchases were made at the "carrier" stage, *i.e.*, with tubercle bacilli in their air passages which had not invaded the system and therefore caused no reaction?

Alderman WILLIAM MUIRHEAD, Liverpool, said that he did not agree with the system of appointing a part-time veterinary officer, as he had his own private practice as well as business to attend to. If they provided a whole-time official in the city he had only to see to the welfare of the people.

Regarding the question raised in the matter of advising the farmer before the visit of an inspector, if he was honest he should be glad to welcome an official at any time, day or night. If he was trying to keep his herd free and anxious to do all that he could, he would not mind when one called upon him.

Dr. GERALD LEIGHTON, Scottish Board of Health, said that it should be borne in mind that the Tuberculosis Order must not be considered by itself; it was combined with the Milk and Dairies Acts. These all came into force on one and the same day, and were complemental to each other. He quite agreed that the Tuberculosis Order was mainly a Public Health measure. In its first year of operation nearly two thousand infected cattle were removed from the milk supply in Scotland. That went on unnoticed by the public. But what would be the public feeling if one day the papers announced that two thousand tuberculous cattle *would be added* to the milk supply?

He could hardly agree with Mr. Lloyd's optimistic statement that Grade A milk might be relied upon to be free from tubercle.

He suggested that recent legislation should be given a chance, with the addition that tuberculin should be controlled in its manufacture and distribution.

Dr. C. PORTER, B.Sc., Medical Officer of Health, St. Marylebone, wished to oppose the resolution and hoped the Congress would not send it forward.

The words "no notice to the occupier of the premises being required" were particularly objectionable and suggested a desire that no government or government department could support, to ride rough-shod over a section of the population. What was required was co-operation, and from the improvements already shown it seemed as if that was taking place. He agreed with Dr. Gerald Leighton that there had been a tremendous advance and, given a chance, the Tuberculosis Order would lead to further advances. The resolution suggested pessimism, and if it had any effect at all it would not be beneficial.

Councillor J. S. RATCLIFFE, Glasgow, stated that farmers were anxious to provide the public with clean and pure milk. He considered that inspectors should have the opportunity of making surprise visits to any farm where tuberculous milk had been suspected. He failed to see why a "straight" farmer should have any objection to what time an inspector called. He hoped the resolution would go through. In Scotland they had no difficulties and if a difficult job had to be done it was done without delay or hesitation.

Dr. W. M. ASH, Chief Medical Officer of Health, Derbyshire, spoke of cumbrous procedure under the Milk and Dairies (Consolidation) Act, 1915, but, on the other hand, stressed the efficacy of the Tuberculosis Order, 1925, to attain its ends if properly used. He pointed out that efficient administration of the Order could be attained by close co-operation between the Contagious Diseases of Animals Act authority and Public Health authority in a county. He also pointed out how expeditious action was under the Order, but suggested that delay was not infrequently caused by insufficient particulars regarding the source of tubercle-infected milk being given by the notifying authority to the Medical Officer of Health of the area in which the milk was produced.

Councillor W. ASBURY, of Sheffield, expressed the opinion that if authority could be obtained to inspect cattle without having to give notice to the owner it would strengthen the position of local authorities, and would at any rate remove the suspicion which at present existed that in some cases cattle had been removed from the herd

between the time of notification of intention to visit and the actual inspection. The man who conducted his business on straightforward lines would have nothing to fear, and no stone should be left unturned to find out the individual who, by such reprehensible conduct, was doing incalculable harm to the community.

On the general question of the purity of the milk supply he stated that it was quite true that we were suffering from over-legislation, the effect of which was to make confusion more confounded, and he advocated an Act to clarify the position. The trouble was that recent milk legislation which had been given birth by the Ministry of Health bore marks of the heavy hand of the Ministry of Agriculture, and right throughout there had been a continuous conflict between these two Government Departments.

He might be regarded as an idle dreamer, but he looked forward to the day when the grading of milk would be abolished and they should insist on a standard of purity which would ensure to the public in all cases a clean and wholesome article of food. He could not understand all the talk about the grading of milk, because no one would seriously suggest grading water, and surely the purity of the milk supply was as of much importance as the purity of the water supply.

The milk question would never be dealt with on a satisfactory basis on present lines. The small man must go, because he could not afford the expenditure involved in doing what was absolutely essential in ensuring that milk was supplied to the consumer clean and wholesome from the source. The future of our milk supply must be concentrated in the hands of the Municipalities, Co-operative Societies, and milk combines, the first two of which he certainly preferred.

Colonel J. W. Brittlebank, C.M.G., P.R.C.V.S., D.V.S.M. (Vict.), Chief Veterinary Officer, Manchester, wished particularly to thank Mr. Lloyd for his paper and to express his personal regret at the cause of his absence. Mr. Lloyd was an experienced worker and his views should command attention, but in this case he was not going to support the resolution, not because he did not believe in the principle enunciated, but because it would be useless, and the reply would be that the new legislation had not been given a chance.

Cities such as Manchester, which had been administering their powers, obtained in 1899, in the widest possible sense, and with considerable co-operation from the producers themselves, now found themselves in the position practically of being required to stand still until the rest, or non-progressive parts, of the community had been brought up to a higher standard, a cynical principle which it would be very difficult to justify and one which, of necessity, caused much misgiving in the minds of those responsible for the health of the people compelled to live in such industrial centres as those to which he had referred.

In his opinion an altogether wrong view had been taken of the situation—the farmer, as he knew him, was not altogether deserving of all the epithets that had been hurled at him. He sympathised with the milk producer to a very large extent and was sure that if he were handled properly and was satisfied that it was not desired unnecessarily to harass him, he was capable of doing a great deal towards cleaning up his business, but unfortunately he hardly knew where he was, amidst the multiplicity of advisers who set out to teach him his business. He, personally, was satisfied that the consumer should be in the position to say what he wanted, and that those representing him should have adequate power to see that he got it—it was all a question of supply and demand and would eventually be to the benefit of the producer in that if a high standard was set up the producer would have to receive a higher price for his output, and this was really the key note of the whole position.

Alderman W. Phené Neal, J.P., Cambridge, pointed out that, owing to the great agricultural depression, farmers had gone in for cattle-breeding with a view to increasing the dairy herds in the country and the sale of milk which would result bringing into the farm ready money monthly. The quantity of milk produced was, in consequence, about twice as much as was daily required for consumption. That naturally governed the price and consequently the industry was not so profitable to dairy farmers as was anticipated. In these times it was difficult for a farmer to maintain his herd in the best possible way owing to the cost of well-bred cows. From time to time cows introduced into the dairy herds developed symptoms of tuberculosis. This was naturally very serious and, under certain circumstances, affected very much of the milk supply.

Milk to-day was divided into various categories, consequently the present grading was far from satisfactory from the consumer's point of view, they not understanding the value of the various grades.

It should not be difficult to determine whether milk was fit or unfit for human consumption, and their endeavour should be to see that the milk supplied to the consumers in this country fulfilled the necessary requirements of the public health.

One might know that a great deal of milk was now imported from the Continent and, unfortunately, they had little or no control over it. Some had had the cream extracted, which, of course, rendered it useless for infants.

All milk imported into this country should be accompanied by a certificate as to its origin and condition.

It seemed to him that no milk where the cream had been extracted should be permitted to enter the country.

The alderman pointed out the care with which all ships' crews, passengers, cargoes (including food), were inspected by the officials of the Corporation of London, and that whenever infected persons were found on board they were detained and sent to hospital, thereby preventing the spread of contagious diseases, a matter of the highest importance, having regard to the enormous population on both banks of the Thames.

The work undertaken by the Corporation was exceedingly heavy, because all ships, when so required, were fumigated, rats and insects destroyed and the clothes of the crews disinfected, in addition to which all cargoes of food were rigorously inspected, and thus they saw the quantity that was condemned by the monthly returns of the medical officer of health.

It was only in that way that the public health of the great masses of the people could be safeguarded.

The following resolution was proposed by Professor G. H. Wooldridge, F.R.C.V.S., and seconded by Dr. H. Scurfield, Folkestone :—

> " That the time has arrived for the control of the sale, distribution and use of tuberculin and the standardisation of the methods of its preparation."

The above resolution was carried unanimously.

The resolution proposed by Mr. J. S. Lloyd was not carried, only 7 voting in favour.

Mr. Alderman Phené Neal, J.P., Corporation of London, proposed a vote of thanks to the Chairman, which was seconded by Lieut. Col. J. W. Brittlebank and carried unanimously.

Lieut.-Col. J. W. Brittlebank proposed a vote of thanks to Mr. J. S. Lloyd for his paper, which was seconded by Professor G. H. Wooldridge and carried unanimously.

This concluded the proceedings of the first session.

(*To be continued*).

Tubercle Bacillus in Milk.

The Medical Officer of the East Yorks County Council reports a case in which the tubercle bacillus was found in a sample of milk. A visit to the farm was paid by the veterinary inspector; the surgeon failed to discover any clinical evidence of tuberculosis in any of the herd, and samples of milk taken from individual cows were also proved negative. Such a case, says the Medical Officer in his report, should be interpreted not as " not present," but as " not found."

Professional Pupilage: Is it Necessary (or Advisable) for the better Education of the Veterinary Student? *

By Frederick Hobday, C.M.G., F.R.C.V.S., F.R.S.E.

During the course of my consultation work I necessarily meet a great many colleagues and our conversation invariably turns into professional channels.

I have been struck again and again by the frequency with which the busy practitioner bewails the inefficiency of the average recently graduated M.R.C.V.S. in the rudimentary details which are the essential foundation for successful practice.

The subject is by no means new, for it has again and again been brought up before the profession, and one has only to read the back numbers of our professional periodicals to verify this.

I happened, a few nights ago, to be looking through some old copies of the *Veterinary Journal*, and in the volume for the year 1881 there are some strongly-worded letters and articles very emphatically advocating compulsory pupilage and drawing attention to its advantages. In fact, one reads in the editorial for January of that year that the Council of the Royal College had ordained that "in and after the year 1884 no student shall be allowed to present himself for the diploma unless he shall give proof of having been a pupil for at *least* one year with a qualified practitioner"; whilst in the *Veterinary Journal* for 1883 another correspondent writes, "To grant diplomas to men deficient in practical matter is unjust to the men, to the public, and to the profession."

It is still the general outcry of the practitioner that the majority of young men who come to him in the position of qualified assistant are of little use in general practice until they have been in his employ for a sufficient length of time to learn tact with clients, to name (and be able to discuss) the respective breeds of animals, the ordinary foodstuffs, and the thousand and one things which make a practitioner successful, and with which most clients are themselves already intimately familiar.

The obtaining of the diploma is only the commencement of one's professional career, which, to be made successful, not only demands a knowledge of animals in disease, but also an acquaintance with the various species in health and with the men and women who are their owners or their attendants.

It is no use to be clever in the knowledge of disease unless one can get the patients upon which to exploit one's knowledge, and it is quite clear that in order to do this, one must have what is generally spoken of as "the tact of practice." It is here that the average young graduate fails, and the reason is quite obviously that he has not been properly grounded in the essential rudiments of his profession.

One does not expect to find old heads on young shoulders, but one has a right to expect to find a certain amount of *savoir faire* displayed by the man who has passed through the training given to him as a veterinary student and is now placed before the general public as "qualified to practise the science and art of Veterinary Medicine and Surgery." It is true we are all students, for a veterinary surgeon can always find something fresh to learn, but when we have obtained the diploma we cannot afford to parade before the general public (who are our future clientèle), as still being the unfinished article; and it is for this reason that I desire to obtain some expressions of opinion from you which will stimulate our syllabus and method of training to do away with the reproach which one so often hears expressed—that in the *practical* application of his theoretical knowledge, the newly-fledged veterinary graduate is so lamentably deficient.

My own opinion, and I have freely expressed it many times, is that there is no doubt that a modification of the pupilage or apprenticeship system would be of unquestionable benefit to England, and that as regards our own profession it would also improve our younger graduates in the eyes of the general public as well as in those of their professional colleagues. In fact, I cannot understand how there can be any doubt about it, and I would like to hear you discuss the "pros" and "cons."

That in other branches of the world's work the same idea is also prevalent can be gleaned almost every day by daily conversation, and it will not be inappropriate if I quote to you from a letter which was written to the *Morning Post* so recently as the 22nd of this month. The writer was drawing attention to the present invidious position of Agriculture, and the heading of the letter was "The Agricultural Slump: Abolition of the Apprentice System." He says, "The thought has occurred to me that a very large proportion of the troubles in industry as a whole arises from the abolition of the apprenticeship system. Under the heading of Labour, Mr. Warden tells of his difficulties with indifferent service and half-hearted work . . . As in all industries, so too, in farming, a good farm labourer has to be built and educated to love and take a pride in his work. What can the average miner or iron-worker, or bricklayer's labourer, know of the needs and habits of the cow or the horse, or the five, six or seven farming course system? How can he assist his employer in the proper handling of the various crops to be gathered, with his absolute lack of instruction and education on such matters?"

We, in the veterinary profession, are not quite as bad as to have applied to us the words "absolute lack of instruction and education," but our course nowadays is of necessity so long, and covers so much ground, that we are apt to devote our energies almost entirely to the diseases *per se* and to forget that in order to be able to recognise the symptoms shown by an animal in disease, it is also necessary that we should have a thorough acquaintance with our animal patients in a state of health. In this respect we cannot compare ourselves to the student of human medicine, for he has unwittingly had a chance from the very early days, when his brain was first able to retain impressions, to gain a very wide and deeply-implanted knowledge of the habits and health of those who are to be his future patients. He has been brought up amongst them and has lived amongst them practically every hour of his life; and, what is more, he himself is one of them.

Contrast his position with that of the boy who wishes to become a veterinary surgeon. If he makes his choice from an instinctive love of animals and a desire to alleviate their sufferings, or if he does it with the fighting spirit to

*Address to the Yorkshire Division N.V.M.A., at Leeds, 27th July, 1927.

overcome difficulties which is innate in many men, (and the particular difficulties which he will take a pride in overcoming are the never-ending problems which accompany that uncomprising enemy, disease) he will be sure to get on ; and if, in addition to that, he has the good fortune to be the son of a stockowner and has had an opportunity of living amongst animals in health, he will have had a double advantage. At the same time, he must not forget that there is always the barrier to be overcome of attaining a very high standard of education, and the study of books for examination purposes does not always go hand in hand with the practical issues which have to be remembered by those who have to look after the daily wants of the animal kingdom. If, as I say, he happens to be a stockowner's son—and by that I indicate that he will have the opportunity of being amongst the animals of the farm—then he has a distinct advantage over the town dweller, for the habits of the horse and the cow in health should be well-known to him by the time he has reached the age at which he can enter a veterinary college. On the other hand, the town dweller has also, if he will only make use of them, many everyday opportunities for observing the habits in health of the horse, dog, and cat, all of which are going to be his patients some day ; and, indeed, in the case of the latter two, in many instances, to form a large proportion of his future *clientèle*.

The fault nowadays, to my mind, is that the commencement of the bringing into contact of the veterinary student and his future work is left too late, and he is not sufficiently taken in hand and given guidance in the age at which he is the most receptive. I am quite sure that it would be better for our profession if some regulation was in force by which, before being signed up to present himself for the diploma, a student has to give evidence that he has had at least twelve months in actual veterinary practice. There is plenty of time for this in the college vacations, although I would much prefer that after passing the matriculation examination, and before going to college at all, the young fellow should have experience of at least six months of the kind of work which he would be expected to carry on at the termination of his college career ; and I would suggest that it is better to serve that time as a pupil with one practitioner, than to dodge about, a few weeks here and a few weeks there. I can speak with practical experience on this point, for I myself was indentured for three years, serving two years before being sent to college and a third year in the college holidays. Had I known what I know now, I would not have bound myself for *two* years beforehand, but I would willingly have been indentured for twelve months beforehand, serving a second year in the college vacations. The majority of young men would thus be caught at a receptive age—that is, approximately 17 or 18 years—and by knowing that their vacations were arranged for them, would go back to people who would be pleased to see them, who would know them, and amongst whom they would be pleased to go again. To dodge about for a few weeks here and a few weeks there is a mistake, as one never attains that friendly feeling and friendly interest which come of the making of a pleasant acquaintanceship, not only with one's veterinary mentor, but with the *clientèle*. An arrangement such as this does away with the waste, which is unfortunately so prevalent at the present time, of the vacations which a student is apt to convert into so-called "holidays." The brain of the young man fresh from college is much better rested at the end of the term by having the chance to put into actual practice the theories which he has been learning from his books and teachers, and a change of method of work is a far better rest than loafing about at tennis and garden parties. What so often happens to the lad who leaves college for a vacation with no fixed plan in front of him is that he goes home for what he calls "a rest." His mother and sisters and others make much of him for a week or two, and at the end of that time his father will begin to ask whether there is not anything that he can do. Possibly he will consult advertisements in the *Veterinary Record* and in many cases he will have the idea that his son is going to be paid for his services. The practitioner, on the other hand, expects to be paid a reasonable sum for teaching the young man his job and it is not unfair that at the commencement, or at any rate, at the first vacation, some such sum as a matter of ten or twelve guineas, which means approximately only about a guinea a week, should be paid over by the student to the practitioner for enlightening his ignorance ; the student, of course, to keep himself in food and lodgings. If he and his practitioner master get on well together, and the latter has found that the former can be made of some use to him, in the second year's vacation some arrangement can readily be made whereby no money passes between them, but in the second year's vacation the student is worth his board and lodging ; and, in the third year, when he will have grown a little bit older and have learned the methods of the practitioner and the peculiarities of the *clientèle*, together with the roads of the district and the position of the residences of the *clientèle*, he should be worth a remuneration which will cover his board and lodging, and give him a certain amount of pocket money. This would only cost his parent or guardian a comparatively small addition to the expenses of his career, as, even if he lives at home, it is going to cost something, and the benefits to the young graduate when he has obtained his diploma would be inestimable. The small additional fee would be well expended and it would certainly help very materially to do away to a large extent with the reproach which exists against him to-day, and I know quite a number of busy practitioners, both in town and country, who would be willing to take students on these terms.

The present is an especially good time to bring up this subject for discussion as, with the examinations just over, the student is at a loose end. With the vacation at hand, the question of pupilage with a busy practitioner is one which should be uppermost in his mind ; and, although it is certainly better that the more intricate problems of clinical work should wait until a sound scientific foundation has been laid, it is also very essential to recollect that by the time the diploma has been gained an age has been reached at which the graduate is not nearly so ready to learn the tact and adroitness which is absolutely essential to enable him to steer clear of the many pitfalls which usually accompany the feeling of self-satisfaction and triumph of the newly-fledged *diplomé*. The college which will be the first to start an experimental farm and breeding kennel to which its younger students can be sent in batches in order that they may gain a practical insight into the

(*Continued at foot of second column next page.*)

The Veterinary Record.

3rd September, 1927.

THE FEEDING AND MANAGEMENT OF DAIRY COWS.

There are many factors which have focussed the attention of the Dairying Industry and the Veterinary Profession on the economic feeding of dairy cows and the management of herds to ensure a plentiful and increasing supply of milk to the public.

The fact that corn production is not a paying proposition has led the farmer to look for a more profitable branch of his industry. Careful milk recording has shown him that there is a great deal of difference in the quantity of milk supplied by individual cows, some of which are only kept at a loss.

The Milk and Dairies Act and Orders have considerably increased the cost of milk production, so that in order to get any returns from dairy farming the farmer finds that he must not only increase the average yield of milk from his herd, but also use the most economical food.

These subjects have been most ably dealt with in the comprehensive articles which have appeared in this journal by Professor Linton, and Mr. R. Boutflour. A careful perusal of these and the excellent discussions will show how much good work has already been done and how many problems there are still to be solved.

Up to a certain point the cow may perhaps be looked upon as a milking machine requiring a certain quantity of fuel to produce a given supply of milk; yet one must not overlook the fact that the cow is a physiological entity with individual peculiarities and weaknesses, living under different environments and methods of management—some in towns housed without exercise for most of the year, others turned out day and night in the country and others, again, turned out on the grass during the day and housed at night. Therefore, statistics are very difficult to compare and the effects of highly-concentrated foods not easy to estimate. It seems clear that to produce large quantities of milk a plentiful supply of liquid is necessary, either in the form of water or vegetable juices contained in roots. If there is an insufficient supply of either one or the other the milk supply must diminish. If the quantity of roots is diminished and an extra supply of water is not given there is a falling off in the quantity of milk. This in some cases is made up by giving mashes and liquid food which some dairymen think is so beneficial, probably chiefly due to providing the extra amount of liquid required.

It is a vexed question whether liquid in the form of vegetable juices or plain water is best; probably it will be found that a certain proportion of roots made up by a plentiful supply of water will be most conducive to health, and certainly roots in moderate quantities are very palatable to the cow, stimulating the appetite, increasing the flow of saliva and possibly stimulating the process of absorption and metabolism.

It has been argued that the excess of concentrates advised by Mr. Boutflour is unnatural for the cow, but he balances this defect by insisting on a certain supply of hay.

As has been pointed out, sudden changes in dietary have given bad results, have set up digestive troubles and have been prejudicial to the animal, also feeding certain concentrates in excess has caused fatal results (chiefly from diseases of the liver), when fed over an extensive period.

It is for the members of the Veterinary Profession carefully to note the effects and record their observations.

There is still a difference of opinion as to the effect of feeding heavily on concentrates immediately before calving on the incidence of milk fever and diseases of the udder. The question of feeding may also have an important relationship to reproduction. Sterility appears to be on the increase, probably chiefly due to the after effects of contagious abortion, but possibly also to the methods of feeding. What effect has feeding on the future progeny and the longevity of the cow?

Can the cow continue the immense strain on the system due to feeding with highly-concentrated foods and excessive milking?

What effect has feeding on the incidence of tuberculosis, Johne's disease and other diseases?

All these points need careful consideration by the Veterinary Profession and we shall welcome in these columns any information and observations to elucidate these problems.

(Continued from previous page.)

habits of animals in a state of health, will undoubtedly turn out the most successful so-called "practical" men.

In conclusion, I ask you to express your respective opinions upon this subject, as I feel that it is one of widespread interest, not only to the student and to the practitioner, but also to the position in which our profession stands in the estimation of the general public.

CLINICAL AND CASE REPORTS.

Some Conditions of Importance affecting Rabbits.

By HENRY GRAY.

UMBILICAL HERNIA.

This condition is very common in adult rabbits, especially in the Angora breed, in which it occasions numerous deaths. It occurs mostly in very fat does, such as are pregnant or as have borne litters. In the majority of instances a loop of the small intestine becomes incarcerated and undergoes strangulation, when there is a purplish enlargement under the abdomen in the navel region, varying in size from that of a filbert to that of a walnut. The animal goes off its food, seems in pain, is restless and eventually dies within two or three days. Occasionally there is a hernia of the omentum and the occluded or incarcerated portion may become cystic. This form, however, does not seem to interfere with the vital functions. In one case in which the animal succumbed to pulmonary tuberculosis the abdominal portion of the omentum was the seat of tuberculosis.

I report this condition for the benefit of country veterinary surgeons who are now and again consulted (and should more often be called in) to give advice on a disease of rabbits, the keeping of which is becoming an important industry so far as pelts and wool are concerned.

TUBERCULOSIS.

Contrary to the general opinion, tuberculosis is very common in the rabbit and more especially in the Angora. It is no doubt due to the fact that since the rabbit has become an important animal for pelt and wool production people have taken to giving it cow's milk. In the majority of instances the pulmonary form predominates without the liver being involved. The mesenteric glands as well as the mesentery are generally invaded with tubercle to a greater or less extent. Next to the pulmonary form, generalised tuberculosis prevails the most. It occurs chiefly in adults and may become a veritable enzoötic.

Its eradication from a rabbitry entails destroying the visibly affected, tuberculin-testing the remainder, eliminating the reactors and thoroughly disinfecting the hutches.

In no other class of animal do the lungs become so extensively and frequently involved as in these rodents.

COCCIDIOSIS.

About 95 per cent. of the mortality in young rabbits is due to coccidiosis. Of this, 90 per cent. is due to the intestinal form and in the other 10 per cent. the liver is involved. Contrary to recent teaching, I have not yet met with a case of the liver form in which the mucous membrane of the large intestine was not deeply involved in the infestation. In young adults from six months to one year there is often paralysis of the bowel with retention of dry and contracted fæcal matter in the colon, double and single. The stomach may contain a great quantity of semi-liquid ingesta. In some cases the mucous membrane of the small intestine may be swollen and gelatinous. During life there may be great thirst, distension of the abdomen, resting on the bottom of the abdomen, grinding of the teeth and dulness, followed by coma and death, which takes place in two or three days. In other cases, beyond a stomach distended with semi-liquid ingesta the alimentary tract only contains liquid, gas and a small quantity of fæcal matter.

The mucous membrane of the cæcum is generally swollen, nearly always pallid, and mostly free of fæcal matter. The organ contains in its walls numerous colonies of miniature coccidia. In young rabbits the wall of the cæcum may not be involved, in which case the massive infection of other parts of the intestine is soon followed by death.

In young rabbits there is generally diarrhœa—the so-called "scours" of rabbit fanciers—dulness, thirst, remaining immovable in a corner and death following epileptiform convulsions or coma. Not infrequently the owner asserts that the rabbits were all right at night and dead next morning; but such a statement is made by many whose rabbits have died from pulmonary tuberculosis, pleuro-pneumonia, strangulated hernia and other complaints running a course of a week or more.

In many cases of coccidiosis in adults there is often a great quantity of red-tinted serous fluid in the pleural or peritoneal cavities, or both, and the liver has a more or less washed appearance.

In the mucous membrane of the bowel (which may, in numerous cases when viewed by the naked eye, show no abnormality) one may, under a $\frac{2}{3}$ objective, see numerous smoky-looking colonies in its depths. These smoky-looking patches, which are either circular or elongated, are shown under the $\frac{1}{6}$ objective to be large numbers of immature coccidia crowded together or overlapping one another.

The mature parasites, or oöcysts, are readily observed dotted all over the free surface of the mucous membrane or in the fæcal contents of the bowel, especially the double and single colons.

In young rabbits there is sometimes a hæmorrhagic tint on the mucous membrane, but the bowel wall, in the majority of instances, shows neither congestion, hæmorrhage nor thickening. In the majority of instances there is diarrhœa, but in adult rabbits there may be the opposite—inactivity of the bowel, or so-called constipation or stoppage.

Coccidiosis attacks rabbits of all ages from the time they begin to fend for themselves before they are weaned up to old age. It is more prevalent in wet changeable weather, especially of the spring and summer months. It is much worse when the rabbits are grazed in the open or where a lot of young rabbits are collected together. It is checked by keeping them isolated and in clean, dry hutches, which are cleaned out at least once a day and disinfected from time to time. Mild disinfectants will destroy the spores or sporozoites, but the oöcysts are very resistant to chemical agents.

Avian Coccidiosis.

By HENRY GRAY.

COCCIDIOSIS IN PHEASANTS.

This is one of the most prevalent diseases of young pheasants and its distribution is all over the United

Kingdom and Ireland. It begins to appear in the young birds as soon as they start to become feathered and continues until after they are turned adrift. It is more prevalent during wet seasons. Not infrequently, it is preceded by an infectious enteritis or pneumonia, or gapes, and may be replaced by or associated with other forms of parasitism. This year in large birds it has been frequently associated with gapeworms. There is no doubt it is contracted by young pheasants picking up food soiled with the fæces of foster hens. In the cæca, the parasites are innumerable and not infrequently associated with a cheesy material which, although it distends the gut, is not adherent to its wall. A similar condition is found in confined partridges. There is hardly a game preserve in these islands that is free from it.

There is no doubt that pheasants in their freedom infect poultry farms, where they often go to get a meal.

Coccidiosis in Canaries, Goldfinches and other Cage Birds.

Coccidiosis is often seen in linnets, goldfinches and other wild birds that have been confined in cages for months and even years. This year it has been very prevalent in canaries and has caused many deaths, which are usually somewhat sudden.

The causal coccidium is round and not oval in outline. It is *Isospora lacazei*. Sometimes in the canary it is *Eimeira avium*. I have seen this disease kill one shrike somewhat suddenly with acute hæmorrhagic enteritis and and other shrike affected with it remain in apparent good health. In the hæmorrhagic intestinal contents coccidia were innumerable.

"Intravenous Therapy."

By Major H. Allen, R.A.V.C. Remount Depôt, Mona, Punjab, India.

As the number of intravenous injections performed in a Country Bred Depôt in this country during a year runs into many hundreds, I was much interested in reading "Some Notes on treatment of interest to Clinicians," by Professor James McCunn in *The Veterinary Record* of May 28th, 1927, No. 28, Vol. VII., especially the remarks in connection with Intravenous Therapy, and the discussion thereon.

The average annual strength of horses and mules in a Country Bred Remount Depôt is about 4,000, and in addition to the intravenous administration of anti-streptococcic serum (prepared in the depôt) on an extensive scale in connection with the control and treatment of strangles among the young stock, the following drugs are given intravenously :—Atoxyl, carbolic acid, corrosive sublimate, formaldehyde, iodine, quinine hydrobromide, tartar emetic and trypan bleu.

In addition to the outstanding advantages mentioned by Professor McCunn, the saving in drugs by this method is a matter for consideration when carrying out treatment on a large scale.

With ordinary sterile precautions, combined with a technique which will ensure that none of the irritant material gains access to the peri-vascular tissues, there is no reason to fear any of the ill-effects generally associated with an intravenous injection, either at the time of operation or subsequently.

In carrying out hundreds of injections annually an occasional case of phlebitis occurs in spite of all precautions, but such yield to simple local treatment, and I have not had a case of occlusion of the vein.

Technique.—The technique employed in this depôt is similar to that mentioned by Professor McCunn. A six-ounce glass cylinder of a human enema syringe is used as a funnel with a short length glass tubing inserted in the rubber tubing, a large bore needle, and an adaptor for connecting the rubber tubing into the needle. The procedure adopted is as follows :—

An assistant places the flat of his hand under the lower jaw, pushes the head in an upward direction and away from the side on which the injection is made; this renders the vein taut.

The vein is then raised, the needle is inserted into the skin only, in the first instance; the vein is then released and raised a second time, when the needle is passed into it.

It is essential that there should be a good flow of blood before the injection is commenced.

After completing the injection the vein is again raised to allow of a free flow of blood through the needle, and before withdrawing the needle it is washed out with normal saline solution.

The following are important points :—

(1) Concentrated solutions should not be used for caustic drugs.
(2) Solutions should be freshly prepared, injected slowly, and at a body temperature.
(3) Boiled or distilled water should be used.
(4) Solutions of tartar emetic, and trypan bleu should be carefully filtered before use.
(5) Tartar emetic should be injected after a "feed," otherwise colicky symptoms are liable to occur.

Dog on "Live" Rail—Recovery.

By T. F. Prime, M.R.C.V.S., Upper Norwood.

Recently I received an urgent message from the Police to go at once to the Crystal Palace High Level Station, as there was a dog on the live rail and, as it could not be removed, was stopping the departure of a train.

On arrival I found that the dog had been removed by hooking one of the poles used by shunters into his collar and dragging him off.

The dog was in an extensively nervous, frightened state and bit the porter when he was getting him into a room. The dog seemed to be sore all over and I seemed to hurt him wherever I touched him. A few doses of bromide of potash, and rest, put him right and about the third day he was normal again, so I was informed.

The dog was lying with his neck and shoulder across the live rail for about fifteen minutes. His coat was dry and he received a continuous current of 600 volts. He was unable to move or get off the rail. There were no marks of burning or singeing.

ABSTRACTS.

Destroying Dogs with Magnesium Salts.

The authors first summarise the different methods used for destruction of dogs—shooting, suffocating, poisoning with illuminating gas, potassium cyanide, strychine, chloroform, ether, morphine and finally the use of the electric current. All these methods are more or less dangerous and cause pain, and death is often delayed.

Jacob reports the destroying of dogs with intracardial injections of magnesium sulphate. He uses 1 c.c. of a solution of 1 gram magnesium sulphate and 1 c.c. distilled water for each pound of bodyweight. The dog is laid upon a table on his right side and the needle of a syringe containing 10 c.c. of a bodywarm solution is pushed inward and upward between the fifth and sixth ribs behind and above the olecranon. As soon as the blood appears in the syringe, the solution is slowly injected and the needle withdrawn. Death occurs in 25 to 50 seconds.

The authors tried injection of magnesium nitrate and magnesium chloride solutions for the same purpose intracardially, because magnesium sulphate, which was used by Jacobs, is not as soluble in water as magnesium nitrate and magnesium chloride. One gram $MgSO^4$ is soluble in 1 gram of water above 15° C. (59° F.); 1 gram $MgCl^2$ is soluble in 0.6 gram of cold water; 1 gram Mg $(Na^3)^2$ is soluble in 0.5 gram of cold water.

A higher magnesium concentration is therefore available. The solution was made in proportion of 2 : 1. Dogs above 20 pounds of bodyweight received 10 c.c. of the body warm solution. Below 10 pounds of bodyweight 5 c.c. of the solution. The longest time required to kill was 20 seconds, and the death occurred without any pain or struggle.

Considering the low price of the magnesium salts, which is about 10 cents the pound, the easy and safe application and the quick death, the use of this method should be preferred.—M. JENSEN and G. SLAWOFF, Berlin. *Tierärztl. Rdsch.*, No. 5, 1927, p. 73.—*Extracted by* OSCAR GLEUCK, Pearl River, N.Y., for *North Amer. Vet.*

[Contribution to the Study of the Movements of the Isolated Intestine. J. KOLDA. *Publications biologiques de l' Ecole Vétérinaire de Brno*, t. iv., 1926.]

The object of the writer was to study the action of purgatives currently employed in veterinary practice for colic in the horse. The author studied first the normal movements of the intestine. The small intestine of the horse, removed after slaughter, put into a thermophore filled with Tyrode solution heated to 70°—the whole then enclosed in a Tyrode bath heated to the same temperature and saturated with oxygen, preserves its motility for one to three hours. The movements of the muscular longitudinal layer are shown by alternate shortening and lengthening; on the other hand successive contractions and relaxings of the circular layer are observed. These two kinds of contractions are, in general, of different frequency; for example, 60 contractions of the longitudinal layer and only 30 circular contractions are observed in five minutes. It is a case of periodic motricity, in which the periods of increased activity are followed by periods of relative or even absolute rest. The tonus has a primordial influence on the motility of the intestine. If the tonus is too low (either normally or through asphyxia), or if it is too high (either normally or through high temperature), the movements diminish in frequency and amplitude in proportion as the tonus is more removed from the normal. The small intestine of the horse lends itself well to a study of the mode of action of different substances on the motricity and the tonus, for during whole hours it executes regular movements and its tonus remains constant.

. . . . . .

[The Influence of Vegetative Poisons of the Nervous System on the Isolated Intestine of the Horse. J. KOLDA. *Publications biologiques de l' Ecole Vétérinaire de Brno*, t. iv., 1926.]

The vagotonics studied—arecoline, pilocarpine, eserine—cause always, after their addition to the surrounding liquid, increased tonus of the isolated intestine of the horse. The degree of this stimulus increases with the dose employed. The rhythmic movements are always paralysed by the three poisons when employed in high doses. This paralysing action is indirect, and is caused by a direct exciting action on the tonus; in fact, large doses of these poisons cause such an increase of the tonus that all movement becomes impossible, and the intestine stops in tetanic "systole." After the addition of small doses, when the increase of tonus is slight, an exciting action on the movements may, on the contrary, be observed. In this direct exciting action on the rhythmic movements, we must distinguish a parallel but indirect action, which also is produced by the intermediary of the tonus. If, in fact, the tonus had been artificially relaxed, so that the movements were weakened or were stopped in complete atony, then the vagotonics in suitable doses raise the tonus to the optimum point, and the movements reappear and are more profound.

Atropine, hyoscyamine, scopolamine invariably relax the tonus. In large doses, the three alkaloids of the atropine group paralyse the rhythmic movements by suppression of the tonus which they relax to such an extent that the movements stop in the intestine, which becomes atonic, and is in complete "diastole." Small doses have, on the contrary, an exciting action on the rhythmic movements which become deeper, quicker and more regular under their influence.

The results of these experiments permit an explanation of certain differences of opinion which prevail concerning the action of atropine. Although the rhythmic movements are in close relation with the tonus, we must distinguish between the action of different substances on the rhythmic movements and that exercised on the tonus. The vagotonics of the arecoline group have an exciting action both on the tonus and the rhythmic movements; the alkaloids of the atropine group have a depressive action on the tonus and, at the same time, an exciting action on the rhythmic movements; this latter is manifested every time that the former, for various reasons, cannot show itself, notably when the parasympathetic system is exhausted. Accordingly, veterinary practice utilises not merely the depressive action of atropine on the tonus in cases of spasmodic colic, but also its exciting action on intestinal contractions in cases of coprostasis, accompanied by partial or complete atony.

(*Ex. Revue Générale de Médecine Vétérinaire*, June, 1927.)

R. L. HIGGINS.

[**Repellent Sprays for Flies attacking Dairy Cattle.** C. R. CLEVELAND. *Jl. Econ. Entomol.* 1926. June. Vol. 19. No. 3. pp. 529-536. Ex *Trop. Vet. Bull.* March, 1927.]

The author records the results of a systematic examination of this question during a period of two years and covering nine and ten herds respectively. The formulæ of seven home-made sprays are given.

A uniform method of spraying all cows once a day after morning milking was resorted to, but in some instances there was, in addition, an evening spraying during part or the whole season.

Figures are given regarding the cost of each for spraying ten cows for three months. In most cases, one spraying per day proved to be effective and sufficently lasting. It is important that sufficient material be used; an excessive quantity was not more effective.

Hæmatobia irritans L. was the most abundant fly, but *Stomoxys calcitrans* was present in numbers nearly as large. The latter species was more difficult to deal with than the former, which was readily repelled.

While all the sprays tested were of some value, from the general point of view—economy, ease of preparation, effectiveness, etc.—it was thought that one containing used crank case oil 1 gallon, oil of tar 1 pint, was the best.

[**Experiments in the use of some Colouring Substances in Veterinary Therapy.** M. LAIDET-DUPERET in a thesis for the doctorate, *in Veterinary Science*, Toulouse.].

After a brief summary of the therapeutic properties of colouring substances and their numerous applications, the author communicates his own observations concerning the use of methylene blue and trypan blue. He used these substances in 1 to 2 per cent. warm solutions, which he injects subcutaneously in doses of 5 to 10 c.c. in the dog and pig, 10 to 30 c.c. in bovines. In the case of trypan blue it is necessary, in order to avoid local irritation, to inject the solutions while still warm and before there is any precipitation. This remedy appears to have produced good results in distemper, bronchitis, pneumonia, icterus, and piroplasmosis in the dog, in hæmaturia in cattle, septic pneumonia and diarrhœa in calves. These very encouraging experiments merit the attention of practitioners who should not, however, forget the toxicity of certain dyes which is still little understood, and the blue tint which meats and fats may keep in slaughtered animals. (Ex *Revue Vétérinaire*, May, 1927).

R. L. HIGGINS.

THE CAUSE OF EQUINE EXOSTOSES.

Professor V. Bossi (*La nuova Veterinaria*, September 15th, 1925) in an article entitled "A Contribution to the Study of Osteites and Arthrites of the Horse," points out that exostoses and ankyloses identical with those found in horses to-day may be found also on the specimens of prehistoric fossil horses of South America and also in colts of the present day which have never worked, refuting the notion of their purely traumatic origin—a theory which, as we have frequently pointed out, will not stand close investigation. The author's studies show that these lesions of the skeleton depart from the articular surfaces and that the cartilaginous synovial and periosteal lesions are secondary, and also that they have a microbian origin (endometritis, influenza, strangles, etc.).

DIVISIONAL REPORTS.

Yorkshire Division.*

DEMONSTRATION OF A NEW JEWISH METHOD OF CASTING AND SLAUGHTERING ANIMALS FOR FOOD.

A general meeting of the above Division was held at the Corporation Yard, Dock Street, Leeds, on Wednesday, 27th July, 1927. There was a large attendance of members, including Messrs. W. A. Campbell (President), T. C. Hall (Hon. Secretary), A. M. McCarmick (Hon. Treasurer), W. Hamilton, F. C. Scott, A. Ellison, Clarkson, W. McKinna Child, Barber, Hallilay, Croudace, Bowman, Sampson, Gaunt, Procter, Gillespie, Woodrow, Rankin, Elliott, Ackroyd and Rabagliati. Numerous other members, who left after Major Hobday's practical demonstration, were also present. Visitors included Dr. R. R. Dalling and Mr. J. B. McKinna.

A series of operations, occupying the whole of the afternoon, was performed by Major F. T. G. Hobday.

An adjournment was then made to the Hotel Metropole for tea, after which the President moved a hearty vote of thanks to the Leeds Corporation Cleansing Department, and to Mr. Thornley and Mr. Waddington (officials of the department), for the excellent arrangements made. Everything had, he said, passed off very well indeed, and they were all deeply indebted to the two gentlemen named for the amount of trouble they had taken to make the proceedings a success.

Mr. Thornley, on behalf of the Cleansing Department, acknowledged the compliment and said that what had been done had been a real pleasure. He could say, without fear, that if there was any assistance the Department could render at any time all they needed to do was to ask for it without hesitation, and everything possible would be done to make the visit a success.

The formal meeting of the members was then held, and in opening the proceedings the President apologised for the notice of the meeting not appearing in the *Record*, owing to its having been wrongly addressed.

Apologies for absence were received from Messrs. Wharam, Pollock, Noel Pillers and Fletcher.

The minutes of the last meeting were taken as read.

A letter from the National Association was read.

Nominations and Elections.—Mr. Pollock (Helmsley), was nominated as a member by Mr. Clarkson, and Dr. Dalling by Mr. Elliott.

Mr. D. S. Rabagliati and H. W. Brekke (Malton), were elected as members, on the proposition of Mr. Clarkson, seconded by Mr. Scott.

Major Hobday then introduced to the meeting Mr. Weinberg, of Leeds, the inventor of a new machine for killing beasts in the Jewish style, and who had brought a model. Major Hobday said that they, as veterinary surgeons, claimed that no profession was more humane to animals than was theirs. A few months ago he became interested in a demonstration of Mr. Weinberg's machine. The present method of killing, as everybody knew, was at times very revolting, and letters were constantly appearing

* Received on August 10th.

in the press on the subject. They in the profession had not been roused as they should have been to take sides either for or against. He felt so strongly about it that, having come to the conclusion that Mr. Weinberg's machine was a success, he arranged, with Mr. Weinberg's permission, to demonstrate it before veterinary surgeons in and around London, who had unanimously agreed it was humane. With the present method it was not the killing that was inhumane. No one would say that the actual cutting of the throat by the Rabbi was less humane than any other method, although it was revolting to look upon; but the present methods of securing the animal, to get its neck, throat and head in the proper position, were often very revolting indeed; the animal struggled, and the eyes showed intense fear. In the demonstration of Mr. Weinberg's machine the whole business was over in thirty seconds, and there was no fear on the part of the animal; in fact, the opposite was shown.

There was a controversy with the Jewish authorities on the use of the machine, and there was some difficulty in getting it adopted, but now he believed the machine was being fixed up at Islington Market and before the Jewish authorities gave a final decision 200 or 300 bullocks were to be despatched by means of the machine.

Mr. Weinberg was an orthodox Jew, a tailor in Leeds, who wished to remove from the Jews the stigma of being cruel in their methods of killing.

In reply to a question, Major Hobday said there was no difficulty in getting the carcase out—it came out very easily.

Mr. Weinberg said he was not a scientist, but would like to say a few words from a layman's point of view. For twenty-four years he had been interested in the killing of animals for food in the Jewish style, and had visited various abattoirs to see the methods employed. No one seemed to take any notice of him, and he had seen a great deal of cruelty, of which he gave instances, owing to the difficulty in getting the animals in the right position for cutting. He found that when gentlemen of the type of those he was addressing paid visits to abattoirs they were to a certain extent conducted tours and everything was ship-shape for them.

Demonstrating the working of his machine by means of a model, Mr. Weinberg showed how the animal walked down a narrow gangway into the machine, where it was held securely by simple contrivances, with its head outside. A lever was then pulled, and the animal was turned quickly on its back, with its neck outside the machine in the proper position for killing. This quick overturning motion upset momentarily the equilibrium of the brain, and if the cutting were quickly performed there was no suffering on the part of the animal.

A vote of thanks was passed by the meeting to Mr. Weinberg for his demonstration. All members present were very much interested in it and discussed it freely.

On the proposition of the PRESIDENT, seconded by Mr. CLARKSON, the following resolution was passed:—

"That we, the Yorkshire Division of the N.V.M.A., are in favour of any attempt to find a more humane method of preparation for slaughter by the Jewish method."

The President then called on Major Hobday to give his address on "Professional Pupilage: Is it necessary (or advisable) for the better Education of the Veterinary Student?"

[Major Hobday's address appears earlier in this issue of the *Record*.—ED.]

A good discussion ensued, in which the following members took part:—The President, Messrs. Clarkson, Gaunt, Bowman, Sampson, Croudace, Child, Scott, Gillespie and Ackroyd.

At the conclusion of the discussion it was proposed by the PRESIDENT, seconded by Mr. G. BOWMAN, and carried unanimously that the following resolution be forwarded to the Council of the N.V.M.A.:—

"That in the interests of the profession, the veterinary student should, during the college vacations, take every opportunity (after passing the matriculation examination) for gaining acquaintance with the practical details of his professional work, and that the Council of the Royal College shall be asked to consider whether, after 1928 (or some such reasonable date) it is not advisable to institute some byelaw which, by a form of pupilage, will necessitate that a student spends at least twelve months of his vacations in contact with actual practice before presenting himself for the diploma."

A very hearty vote of thanks was accorded to Major Hobday for his strenuous task in performing three operations in the afternoon and his very interesting address in the evening.

The meeting then concluded with a hearty vote of thanks to the President.

T. C. HALL, Hon. Secretary.

Royal Counties Division.

SUMMER MEETING AT CAMBRIDGE.

The President of the Royal Counties Division (Professor J. B. Buxton) and Mrs. Buxton provided the members of the Division with a memorable day's enjoyment on Friday, August 5th, when the summer meeting took the form of a visit to Cambridge.

The meeting was largely of a social nature and the numbers were augmented by many lady visitors, who spent a pleasant sight-seeing afternoon under the guidance of Colonel Wood. For the members themselves Professor Buxton had arranged an inspection of the Field Laboratories of the Institute of Animal Pathology, with demonstrations of features of the work of the greatest interest to practitioners. He and his staff spared no pains in describing the practical experiments being carried on in the cure and control of diseases of farm livestock and in the various laboratories the party were shown how material was dealt with which was sent for examination by veterinary surgeons and stockowners.

Great interest was displayed in the travelling laboratory which enables Professor Buxton's department to go immediately to any outbreak of disease and examine it on the spot.

The party gathered at the Lion Hotel, where it enjoyed the hospitality of the President and Mrs. Buxton at luncheon. Before the company dispersed to form its respective groups under Professor Buxton and Colonel Wood, the opportunity was taken by Mr. J. W. McIntosh to express to their hosts the warmest thanks of the Division

for the kindness of which the members were the recipients that day.

On arrival at the Field Laboratories a brief business meeting was held, with the President in the Chair. There were also present Messrs. J. R. Baxter, C. Elphicke, W. A. Hancock, J. R. Hewer, G. P. Male, J. W. McIntosh, F. T. Trewin, F. W. Willett and the following visitors :—Messrs. H. R. Allen, T. J. Bosworth, Major A. A. Comerford, Messrs. R. L. Cornell, R. E. Glover, J. R. M. Innes, N. P. Male, H. L. Roberts, J. Stewart, and R. A. Willett.

The ladies who participated in the social proceedings were Mesdames Buxton, Baxter, Bosworth, Hewer, Roberts, Trewin and Willett, and the Misses McIntosh, and Willett.

At the outset the PRESIDENT said that they were supposed to do a certain amount of business on that, their annual outing, but that year it would be a smaller amount than usual owing to the unfortunate illness of their Secretary, Major Catmur who, as they knew, had been ordered away for a long change. He was sure they all hoped that Major Catmur would benefit greatly by that change. (Hear, hear.)

They had no minute book and there was no correspondence, but they had to arrange the place of their next meeting.

It was agreed that that meeting be held at 10 Red Lion Square, London.

It was decided that a letter be sent to the Hon. Secretary expressing the sympathy of the members with him in his illness and the hope that he would soon be restored to health and that they would have him with them at the next meeting.

Elections and Nominations.—Mr. A. V. Franklin, of the Ministry of Agriculture, was unanimously elected to membership of the Division and a gratifying number of visitors present allowed their names to go forward amongst the list of gentlemen nominated to membership and whose nominations were approved, as follows: Messrs. H. R. Allen, T. J. Bosworth, Major A. A. Comerford, Messrs. R. L. Cornell, R. E. Glover, J. R. M. Innes, H. L. Roberts, and R. A. Willett.

The PRESIDENT expressed his pleasure at the number of nominations, and much applause greeted his remark that he believed he was right in saying that when they materialised as additions to the list of members they would enable the Division to appoint another representative to the Council of the N.V.M.A.

Post-mortem Specimens.—Mr. J. R. Hewer exhibited a portion of bowel taken from a tuberculous cow. This was a case of generalised tuberculosis and on looking at the bowel the exhibitor noticed a number of spots showing through its lumen. On cutting into it the spots revealed themselves to be ulcerated areas, and he took the lesions to be tuberculous ulcers. [The report of the microscopic examination subsequently made by a member of the Institute stated "Sections showed typical histology of tuberculosis lesions and acid-fast bacilli were somewhat scantily present."]

The PRESIDENT remarked that Mr. Hewer's specimen was a most interesting one and in view of the fact that they were meeting there that day he would ask Mr. Hewer if he would be so good as to allow him to retain it for the Institute.

Mr. HEWER acquiesced, saying that that was his intention in bringing it.

Continuing, Mr. Hewer said that although the cow was reported under the Tuberculosis Order she might almost have been taken for a Johne subject, so much was she purging.

There being no further specimens, the PRESIDENT said: This afternoon we do not want to overburden you with routine matters; we propose, therefore, to cut our business meeting as short as we possibly can. Mr. Bosworth has kindly consented to talk for a moment on some specimens which we have potted, and which have been selected because we think they are of considerable interest from the practitioner's point of view. Following that, I suggest a brief walk round these premises because I should like you to see what we have done in the way of building up a field laboratory. This is not, however, our main building. The main building will be in the School of Pathology. This building was put up solely for the purpose of enquiring into the diseases of animals which can be accommodated on the spot; it is, of course, only a nucleus. Having had a look round this building, with its specialist and general departments, we will visit the infectious unit. We have, as you know, a fairly large staff; this is the largest veterinary research station in the country and one of which we are extremely proud, and the members of the staff have their own laboratories allocated to them. In addition, we have this room, which we regard as our diagnosis laboratory. Material sent in here by veterinary surgeons is dealt with by Mr. Cornell and the members of the staff who work with him. They also carry out research. We have also our routine histology and media-making departments and one, run by Mr. Allen, for the manufacture of vaccines and serums. There is the most intimate collaboration between the two departments.

THE EXHIBITS.

Mr. BOSWORTH then proceeded to describe the numerous exhibits. Most of these had been described to the members of the Eastern Counties Division on the occasion of their visit the previous week and an account of them has appeared in the *Record* in the report of that meeting (issue of August 27th).

DISCUSSION.

The President, having invited discussion of the specimens, Mr. TREWIN expressed the indebtedness of the members to Mr. Bosworth for his demonstration and asked if swine erysipelas was, in his opinion, more prevalent in this country than it used to be. In his experience it was much more common, especially this summer. He also wished to know if, in addition to serum treatment, he advised the use of sero-vaccination for the purpose of producing a prolonged period of immunity. Sero-vaccination appeared to be practised in some countries and he was quite sure that if it were efficacious it would be of great benefit, especially in herds in which pedigree pigs were being produced because, while they could produce a few weeks' immunity with the serum, it was necessary to give repeated injections, and the farmer would much prefer to have vaccination carried out in the early part of the summer so that he could get the pigs safely through the whole period.

Mr. BOSWORTH said that he was afraid that he could not give Mr. Trewin any statistical information as to whether swine erysipelas was more prevalent now than it used to be, but certainly more cases were brought to their notice—though he could not say whether that was because diagnosis was improving or because the disease was actually becoming more widespread.

Certainly farmers were anxious to have some form of vaccination. The use of the simultaneous method of injecting serum and living vaccine as a preventive was, he thought, not entirely safe. He knew that at times some serious accidents had occurred. He remembered one veterinary surgeon injecting 100 fat pigs and in a few days' time finding about 60 of them dead. He thought that was the reason why laboratories in this country were not issuing live culture with their serum for this purpose. They (at Cambridge) were trying to get something which was safe and they hoped that in the very near future they would be able to produce an active immunity with no accidents.

Mr. H. L. ROBERTS requested to be allowed, as a visitor, to add his quota of praise and thanks to that of Mr. Trewin to Mr. Bosworth for his very intelligent exposition of the various specimens which they saw in front of them.

With reference to the kidneys, he thought it would be within the memories of them all that they were taught that when they met with a hæmorrhagic lesion in a kidney of the pig that was indicative of swine fever. He did not suggest, however, that that specimen was other than one of swine erysipelas, but Mr. Bosworth had referred to the hæmorrhages in the capsule and the kidney cortex as being typical of swine erysipelas. He was somewhat surprised to hear Mr. Bosworth's remark that the specimen of melanosis of the lung of the calf was not at all uncommon. As a country practitioner of 30 years' standing, he confessed that he had not, in the Eastern Counties at least, met with such a beautiful specimen of melanosis of the calf's lung. He respectfully submitted that melanosis of the calf's lung, outside the big colliery districts of Great Britain, was rather an uncommon lesion with which to meet in ordinary practice.

He congratulated the staff of the laboratory upon the excellent preparation and preservation of the specimens they had seen that afternoon. In his practice they attempted in their little way to put by specimens from time to time, but these were getting in the way and he was pleased to know that the Institute would be glad to accept anything of real interest that they liked to send along.

He thanked the President and members of the Royal Counties Division for allowing him to comment on the demonstrator's remarks.

Mr. BOSWORTH briefly replied to the points raised in the discussion and the members then commenced the sight-seeing tour of the Field Laboratories to which reference has already been made. Of particular interest to all, however, was Professor Buxton's demonstration of this potency test for tuberculin, and a series of titrations of several tuberculins, by means of which he showed the necessity for the testing for potency of all tuberculins which are to be used for detecting the disease in cattle.

(Continued at foot of next column.)

The Emergency Case.*

By J. C. FLYNN, D.V.S., Kansas City.

One is not in practice very long before being called to an emergency case, that is to say, a case that requires immediate and special attention, and which cannot be handled in the ordinary fashion, nor enables one to give any time to the study of the proper technic. The emergency case, therefore, is one which must be studied before the emergency arises.

It is only necessary to come face to face with the excited owner of a pet, violently ill, poisoned, scalded, overcome with smoke or heat, choked with a bone, mangled by a street car, run down by an automobile, or cut with a mowing machine, to be made aware of the wisdom of preparedness. The army furnishes soldiers with emergency kits, and passenger trains, mines, factories, etc., are equipped to meet unusual accidents. Most of the commercial medical supply houses sell a special package for emergencies, and the thoughtful tourist is never without one. Such packages are found in hunter's cabins, boats, and the family medicine chests. All of this points to the acknowledged necessity of preparedness in this connection.

It is not difficult for the practitioner to prepare for the emergency case met with in small animal practice, except possibly for extraordinary circumstances.

The emergency outfit for ordinary purposes should include: A sharp-pointed scissors; a large, curved scissors; assorted needles; assorted hæmostats; a medium-sized scalpel; a tourniquet (strong rubber bands will answer); a hypodermic syringe; a two-ounce metal dose syringe; a combined probe and seton needle; a pair of tongue forceps; a pair of rat-tooth forceps; and a vest-pocket magnifying glass.

In addition to these instruments one should carry: A package of cotton; several bandages; rubber gloves; adhesive tape; some sterile gauze; a package of assorted catgut and assorted silk ligatures; tablets of strychnin, morphin, apomorphin, glononin, digatilis, atropin, cocain; 20 c.c. of hemostatic serum; a package of butrisin-picrate or an ointment for burns and scalds; a bottle of tincture of iodin; a bottle of alcohol; a package of antiseptic dusting powder; an ounce bottle of chloral hydrate; a bottle of ether or chloroform; a bottle of camphorated oil, and a mild antiseptic eye ointment.

The above-listed articles will answer for most all emergency cases, with the exception of certain cases of poisoning.

The emergency cabinet maintained at the hospital may be more completely equipped, especially in regard to instruments, dressings and assortment of antidotes for

* Reprinted from the *Small Animal Practice* Section of the issue of the *North American Veterinarian*, of April, 1927.

(Continued from previous column).

Upon their reunion on the lawn of the President's house, the whole party were again the appreciative recipients of his and Mrs. Buxton's hospitality at the tea-tables. Mr. Trewin's warm expression of thanks, on behalf of the members of the Division and their ladies, was a fitting termination to an entirely successful visit.

R. CATMUR, Hon. Secretary.

poisons. Of course, any well-managed hospital keeps well stocked with emergency equipment, but the important thing to bear in mind is the importance of having every item not only on hand but accessible. The accessibility of the agent needed may be the means of saving a patient's life, and the impression this degree of preparedness leaves on the mind of the client is good advertising.

Take, for example, the case of strychnin poisoning brought to the hospital in the throes of convulsions, where one rushes to the emergency cabinet for a hypodermic syringe only to find that the one needle left is plugged up or is broken in attempting to administer the injection, while the frantic owner is crying every moment, "Oh, doctor, save my dog." In such an event, one would be compelled to resort to a peroral emetic which the client would notice was not what was originally intended. But suppose the apomorphin bottle is empty? The same applies to the injured patient, bleeding badly, where the hemostats have been mislaid or the bottle of hemostatic serum is empty or wanting. Valuable time is lost and possibly also the patient and a client. There is no satisfactory excuse for these unfortunate situations and, moreover, the client wants service and not excuses, particularly in the case of emergency.

The handling of cases of emergency should go beyond the matter of equipment. The telephone operator should be so trained as to be able to recognise an emergency and the staff trained to take quick action when one arises. Even as the telephone operator is writing down the name, address and other information required, the doctor is already getting on his hat and coat and the garage door is being opened to let him hasten to the patient without any delay. Time is thus gained and the gain may mean the saving of a precious pet. At least everyone has done his best and the service rendered was worthy of the name

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Sept. 12-17th—N.V.M.A. Congress at Torquay (Sept. 12th—Committee and Council Meetings).

Sept. 13th—Business Meeting of the Western Counties Division at the Town Hall, Torquay.

Sept. 22nd, 23rd.—Examination at R.C.V.S. for Jubilee Memorial Bursary.

Oct. 5th—R.C.V.S. Committee Meetings.

Oct. 6th—R.C.V.S. Committee Meetings.

Oct. 7th—R.C.V.S. Council Meetings.

Tickets for Congress Functions, Etc.

To facilitate the work of the Local Secretary (Mr. R. B. Nelder, 24 Dix's Field, Exeter), members who will be attending the Congress of the Association at Torquay are urged to complete and return to him at the earliest possible moment the blue application forms for tickets (for the various functions) which have been issued with the previous two numbers of the *Record*. Remittance by post for tickets is not necessary and tickets will not be forwarded by post but will be obtainable during the Congress week at the Secretary's Office, Torbay Hotel, Torquay, when payment may be made.

We regret to learn that, owing to ill-health, Mr. Trevor F. Spencer, M.R.C.V.S., of Kettering, will be unfortunately unable to attend the Congress at Torquay. Mr. G. P. Male, M.R.C.V.S., of Reading, has therefore kindly consented to take the place of Mr. Spencer in the opening of the discussion (in conjunction with Mr. J. S. Lloyd, F.R.C.V.S., D.V.S.M. (Vict.) on Major Brennan De Vine's paper "Diseases of the Cow considered in Relation to Milk Legislation" to be discussed by the Section of Veterinary State Medicine.

We are sure that members will join with us in wishing Mr. Spencer a speedy recovery.

R.C.V.S. Obituary.

Elder, William Todd, Kirktown, Rayne, Aberdeenshire. Graduated, Edinburgh, 19th December, 1893. Died, 25th August, 1927.

Mahony, Bernard Patrick Joseph, Maryborough, Queen's Co. Graduated Glasgow, 17th April, 1879. Died 11th August, 1927.

Personal.

Appointment.—Mr. Norman Dobson, B.Sc., M.R.C.V.S., recent Centenary Post-graduate Fellow of the Royal (Dick) Veterinary College, Edinburgh, has been appointed a Research Officer of the Foot-and-Mouth Disease Committee.

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Will.—Hill, Mr. John Roberts, of Elmside, Bargates, Leominster, Herefordshire, retired veterinary surgeon (net personalty £109). £5,236.

The Progress of Milk Recording.

"Perhaps the most encouraging feature of the Ministry of Agriculture's Live Stock Improvement Report," says the *Farmer and Stockbreeder*, "is the progress of the milk recording movement. Progress in a year of overproduction of liquid milk and somewhat low prices seems to indicate that the financial advantages of recording are becoming more widely recognised. Recording and feeding according to yield, while essential at all times, are even more important when the profit margin is small. The necessity for cutting down expenditure to a minimum has resulted in many producers severing their connections with societies. But, as the report points out, there is good reason for believing that the practice of private recording is increasing. While this may be regrettable from the point of view of the societies, it is not in any way a retrograde step, since the main object of the scheme is to convert producers to the advantages of recording. For those who have a number of cows and calves for sale, however, the nominal charges of the societies should be more than repaid by the additional value of the official figures."

Notanda.

The history of scabies in animals is closely allied to that of the same disease in man. It was, nevertheless, in the former that it was first mentioned in the Bible (Lev.

xxii. 22). Moses excluded mangy animals from being offered at sacrifices.

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It is not until we arrive at the time of the Arab physicians that we find the first precise notions on itch, and learn that there was then an idea of its parasitic nature. Avenzoar (1072-1161) makes the first mention of a disease caused by the presence of a little creature, popularly known as *Soab*.

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Wedel in 1672 pointed out that acari were the cause of itch in the cat; then followed a similar discovery in connection with the sheep and fox by Walz in 1809, and with the horse, ox, dog and rabbit by Gohier in 1812 and 1814. (Neumann).

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If transplacental tuberculosis ever occurs it should be regarded as exceptional. (Calmette.)

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If proliferative arthritis in humans is due to focal infection and we concede that spavin and allied ailments of horses are a proliferative arthritis, just why does the veterinary pathologist stick so stubbornly to the cherished notion that all of these troubles are traumatic? (*Nth. Amer. Vetn.*)

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The total volume of blood in an animal, for all practical purposes, may be placed at approximately 5 per cent. of the total body weight. A 1,000-pounds horse therefore contains 50lbs. or approximately 6 gallons, and a 25lb. dog only 1¼ pounds. H. K.

Pure Milk Supply.

Professor R. J. Johnstone, F.R.C.S., M.P. (Queen's University, Belfast), speaking at the Unionist School at Portrush on public health, with special reference to milk supplies, described milk as a perfect food, containing everything that was necessary for human life. It was also a perfect food for bacteria and microbes, which multiplied at an appalling rate, especially when the milk was warm. The milk as sold for human consumption was full of microbes which had been introduced after the milk came from the cow. The problem, therefore, was how to preserve the milk as far as possible in the state in which it came from the cow. After mentioning various ways in which milk became infected, Professor Johnstone described several methods which the Government should adopt to secure a clean milk supply. The first thing was to take samples of the milk as supplied to the consumer. The second was to inspect the places where the milk was produced to see that the cowsheds were well ventilated. But even when the authorities had taken samples, inspected cowsheds, and tested cows, reliance had, after all, to be placed on the goodwill of the milk vendor. Apart from regulations, there was a need to create in the producer a desire to keep his cowshed clean and his cows under hygienic conditions. The way in which they could create that desire was by showing him that there was money in it. Another important factor was the education of public opinion in favour of having clean and pure milk.

Avoid Harsh Handling of the Cervix of Cows.

The method of dilating the cervix still seems to be little understood. Unless the cervix is diseased and relaxed as a consequence, the canal through it is never large or straight enough to allow the passage of an instrument through without injury unless it has first been dilated. To accomplish this it should first be fixed with one or two forceps placed upon the projecting folds of the external os and retracted. Then place the dilator into the canal to the depth of the first transverse fold and carefully but forcibly stretch the tissues until the circular muscles are tired out and the fold is lifted. By closing the dilator and rotating it carefully it finds its way under the fold and along the canal to the second fold, etc. Three and sometimes four such folds must be lifted before the instrument will pass freely into the uterus. It can then be followed by a small catheter. The avoidance of injury to the uterine mucosa by the careful use of catheters is of equal importance. Many times one finds abscesses and adhesions in the region of the ovaries, tubes, uterus, or cervix as a result of injury in treatment. Professor H. E. Bemis, Eighth Annual Veterinary Conference, University of Illinois, Extract from *Animal Pathology Exchange*, March, 1927.

Homœopathy Defined.

Speaking at a meeting of the International Homœopathic Congress in London, Dr. C. E. Wheeler defined homœopathy as a principle of drug therapeutics which taught that the best remedy for a given case was the most similar one; that is, the one which, given to healthy persons, most closely reproduces the symptoms of the disease case in question. Remedies, therefore, must be tested on the healthy before they could be prescribed for the sick, and, once chosen, a small, not necessarily an infinitesimal, dose should be given. He pointed out that the truth or fallacy of homœopathy was thus clearly a matter for experiment, and claimed for his advocacy no more than an incitement to experiment. He pointed out that Hahnemann was a famous physician and chemist in his day; that he was far in advance of his time in such matters as the proper treatment of the insane, and in such public health matters as the control of epidemic disease; also that all his followers were trained physicians acquainted with all contemporary medical advances. The belief of Hahnemann and of his followers alike in homœopathy was founded exclusively upon experiment and observation, while those who condemned them seldom or never had made actual tests of the theory they did not hesitate to condemn.

H.M. Stationery Office Publications.

The undermentioned have been published during the week. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and 28 Abingdon Street, S.W.1; Cardiff: 1 St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120 George Street.

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In the stomach of a bullock, which they killed and dressed, men employed by Mr. J. E. Holland, butcher, Billingborough, found a composition cricket ball measuring about 2½ inches in diameter.

Cheshire County Council are asking the County Councils Association to impress upon the Ministry of Health the desirability of prohibiting the sale of condensed skim milk for human consumption.